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OBSERVATIONS ON THE TREATMENT OF LEPROSY IN HAWAII

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Leprosy has probably been prevalent in Hawaii for about 100 years; and in 1865 its incidence was such that the governing authorities of the islands instituted measures for its control. The procedures which were adopted were in accord with two principles governing in the modern practices of preventive medicine, namely, quarantine, or the separation of the sick from the well, and the suppression of the contagion in the sick. The measures instituted at that time have been continued to the present date. Lepers are mandatorily segregated, and provision is made for their care and medicinal treatment.

To accomplish these measures a community settlement, Kalau-papa, was promptly established. This settlement was located on a peninsula of 5,000 acres on the island of Molokai, isolated by sheer mountainous cliffs from the main portion of the island, the area of which is about 200 square miles. A receiving station was provided at Honolulu for the diagnosis of cases and for the treatment of patients whose condition was urgent. This station has also been used during the past 17 years for the detention of patients whose condition offered the greater promise of recovery and permitted intensive study. The custodial and remedial practices adopted within these establishments were based upon the results of the experience and the aid of able investigators of the subject, as well as upon reports of authoritative methods of treatment which were solicited from all over the world.

The establishment of facilities and the adoption of definite policies for the control of leprosy continued for 60 years within this geographically and insularly isolated country, the area of which is but little greater than the combined areas of Connecticut and Rhode Island, afford a unique opportunity for the appraisal of the methods of treatment involved.

Segregation

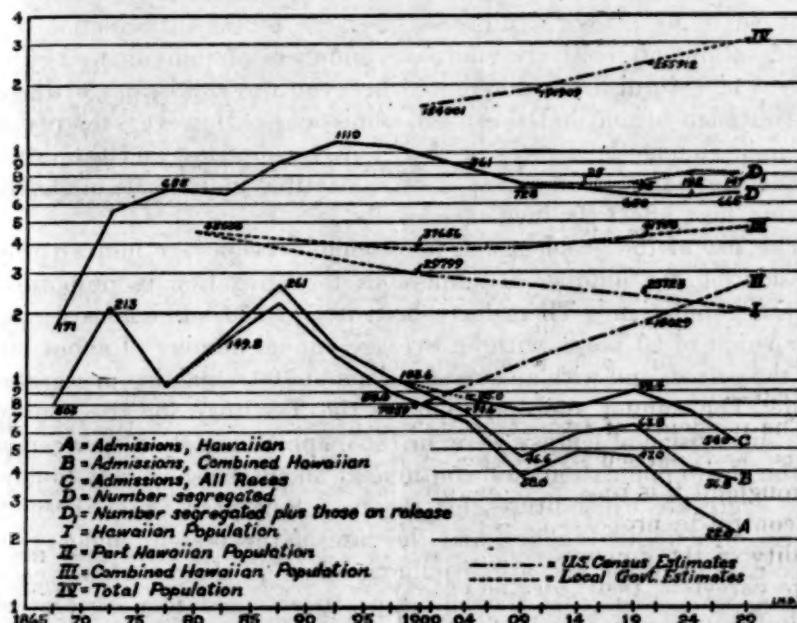
The separation of persons afflicted with leprosy from those presumed to be well is a public-health or preventive measure the origin of which

is ancient, and the principle of thus decreasing the number of sources of infection is accepted in modern practices for the control of communicable diseases. The practicality of such procedures, when mandatory under police regulation, is dependent in large degree upon the incidence of the disease, the willingness and economic ability of the governmental unit to support it, the facilities of communication and transportation in the country involved, and the readiness with which both the afflicted individual and the afflicted population accept provisions of asylum, relative comfort, and personal treatment in exchange for personal liberty. The segregation, prolonged through many years, usually necessitated in leprosy, demands a great sacrifice by the individual, largely for the commonweal. The particular benefits which can accrue to him are the provisions for his personal comfort and relief among associates who are afflicted in like manner, and who are sympathetic. His segregation, likewise often demands much sacrifice of his family, and enforced segregation should include provisions to compensate such families, at least economically. The traditions of the afflicted population may accept the presence of leprosy among them indifferently, or it may be regarded as a stain on the family honor, or may be feared with a fanatical intensity. The prevailing popular racial or family estimate of the disease will affect the facility with which the case is apprehended or submits to segregation.

The incidence of leprosy in Hawaii has been high for the past 60 years, and particularly among the people of the Hawaiian race. Throughout this time the government has contributed heavily toward its control in proportion to its ability; and though the degree and quality of the domiciliary care and of the treatment furnished may have varied in their adequacy, they have conformed, on the whole, with the customs and practices of the affected people, and have reflected such specific knowledge and progress as prevailed in the world. The Hawaiian people, in turn, have accepted segregation, though not always with grace, but maintain an indifference toward the gravity of the disease. During the earlier decades of the period reviewed the means of communication and transportation were by poor trails, roads, and devious water routes in small boats, which required much time and energy on the part of the travelers. Modern facilities are now established throughout the Territory.

The incidence of leprosy in Hawaii must be considered with relation to the population of Hawaiian strain, since individuals of this racial strain furnished practically the total number of admissions previous to 1895, and have continued to furnish approximately two-thirds of all admissions during the past five years. The average annual number of their admissions, over periods of years, probably affords an index of the prevailing incidence, especially during the later

periods when means of communication have been increasingly improved. The admissions during the first 15 or more years of segregation will, manifestly, include the apprehension of cases which had accumulated in the periods prior to the institution of the regulatory measure. Estimates by local authorities of the number of Hawaiians are as follows: In 1832 there were over 100,000; in 1880, approximately 45,000; the estimates of the United States censuses in 1900, 1910, and 1920 are, respectively, 29,779, 25,044, 23,723. The estimate of the Territorial Board of Health for June 30, 1929, is that there are 20,479. The United States census authorities have



classified those of definitely mixed Hawaiian strain as "part Hawaiian." This latter group has rapidly increased during the past 30 years. In 1900 it numbered 7,859, and in the subsequent censuses of 1910 and 1920 it had increased to 12,506 and 18,029, respectively. The local official estimate for June, 1929, is 27,285. There are often practical difficulties in determining the purity of the strain which is classified as Hawaiian, but those classified as part Hawaiian are composed of definite mixtures in varying proportions of Hawaiians, Chinese, Japanese, Portuguese and other Europeans, and Americans.

The importance of the consideration of both those designated as Hawaiian and those designated as part Hawaiian as components of the population of Hawaiian strain will be immediately evident from the fact that the average annual admission rate of the part Hawaiians

is about half that of the Hawaiians. Chart 1 presents in graphic form the average annual number of admissions during 5-year periods from 1865 to June, 1929, in relation to the Hawaiian, part Hawaiian, combined Hawaiian (Hawaiian and part Hawaiian or Hawaiian strain), and total population changes. It will be seen that the curve representing the average number of annual admissions of Hawaiians has been steadily downward, with a sharper angle of declination than the curve of the Hawaiian population. The curve representing the admissions of combined Hawaiians and part Hawaiians is downward, while that of the corresponding population is upward. The changes shown in the curves of the total number of admissions is believed to be of less significance, because of the introduction, by immigration, of relatively enormous numbers of individuals of the races which furnish the differential between the admissions of those of Hawaiian strain and the total admissions. However, leprosy is endemic among these races in their native countries, and the introduction into Hawaii of cases, or of susceptible individuals or family strains, may affect the incidence locally.

The size of the problem and its economic weight are indicated by considering the number of admissions to segregation in proportion to the population. There have been over 7,000 admissions during the period of 60 years, with an average annual number of about 116 for the period, and with an average of about 700 remaining in segregation. The annual appropriations of the Territory for the control and supervision of leprosy were, in 1865, approximately \$1 per capita of the entire population, and continue at about the same rate to-day. The aggregate expenditures for the past four years have been in excess of a million dollars, and the rate of the present budget will aggregate over one and a half million dollars in the next four years.

It appears, then, that Hawaii has practiced mandatory segregation of leprosy through more than half a century, in a manner and with an efficiency which are probably commensurate with the practices in any country in which the problem is comparable. The results obtained in controlling the disease and its dissemination among the Hawaiian people are difficult to evaluate. Approximately the same number of people are in segregation now as there were between 1875 and 1885, and but a small percentage less than there were 20 years ago, in spite of the fact that, during these 20 years, "parole" has been in effect, and during the past 10 years an average number approximating one-fifth of that in segregation was temporarily released and at large "on parole," under supervision of the authorities.

The number of new admissions among Hawaiians has fallen rather steadily for the past 40 years. Also, the average annual admission rate per thousand of Hawaiian population between 1880 and 1890 was between 4 and 5, while for the past 10 years it has been about

one and a half; and for the combined Hawaiian and part Hawaiian it has been less than 1 per thousand. With the experience of governmental authorities and acceptance of the measure by the people for the past 50 years, and with the modern means of communication, it is probable, too, that a greater percentage of all cases is apprehended now than was the case 25 to 40 years ago. However, it is doubtful whether the fall in the number of admissions or in their rate to population can be attributed to mandatory segregation alone, since both biological and economic factors enter into the consideration. The incidence among the Hawaiian people was of very severe degree, even as late as 1890, when there were over 1,000 in segregation, and an average annual admission of 150 from a population of approximately 40,000. Hence, during the years preceding, much of the most susceptible population must have been affected. The more susceptible among the Hawaiian population have probably continued to decrease in number through the operation of two other factors: The birth rate of Hawaiians has diminished rapidly, even as much as between 30 and 40 per cent, during the past 10 years, and the death rate has remained high, so that this population has fallen to a number less than 50 per cent of what it was 50 years ago. There has also been a continued dilution of the purity of this group by intermarriage. This latter factor has apparently operated in the diminution of the most susceptible group, since among those classified as part Hawaiian the annual average admission rate is very much less than among those designated as Hawaiians. The part-Hawaiian group is one in which the mixture with the Asiatic or Caucasian races is definite or pronounced; but there has been for many years an increasing amount of foreign strains in that group classed as Hawaiian, which may tend to decrease the incidence among the latter.

Aside from these biological influences, the incidence of leprosy has probably been affected by the improving sanitary conditions brought about through greater contact with more modern practices, especially since the control of the government has passed from native chieftains to the United States. Housing conditions have changed from those of the family straw-mat bed in the straw hut, to those of less intimate contact in wooden houses. The common family bowl has been replaced in large degree by individual food receptacles. There has also been a decided drift from primitive isolated or community rural living to more urban conditions.

G. Armauer Hansen, in 1902 (meeting of Leprosy Committee in London, *Lepra*, Vol. III, Fasc. 4, p. 260), while discussing the decline of leprosy in Norway, attributed the results to the isolation of a certain proportion of the cases in asylums, and the education of the

remainder in proper hygiene. Between 1856 and 1880, the number of lepers in Norway was apparently about 1 per thousand of population, and in 1880 there were about 38 per cent of the reported cases in public asylums.

Hansen further stated that the first laws enacted concerning leprosy in Norway were in 1878, but that the present and more efficient law dated from 1885. However, in the figures included in his essay, "Abnahme der Lepra in Norwegen" (Lepra, Vol. IV, Fasc. 4, p. 235), he notes a steady decline in the total number of cases in the entire country from 2,598 in 1856 to 1,348 in 1878 and to 893 in 1885. Further, between 1856 and 1885 there were 4,720 new cases recorded, 3,191 patients who died, recovered, or disappeared, and 2,996 patients who were institutionalized.

He also stated that no cases had originated in the city of Christiania. This latter was a town of about 109,000 population in 1880. Norway's practice of segregation of leprosy is considered exemplary of the results to be obtained by the procedure; but in view of the above discussion, together with the probability that only those cases which had become relatively advanced were included among those reported, it is difficult to determine the rôle that the segregation of a portion of the reported cases may have had in the decrease of the disease in Norway.

As previously indicated, it is improbable that the decreasing rate of leprosy in Hawaii is attributable to any great extent to the practice of segregation. However, its continuance for the present, under modern administrative methods, seems desirable, because of the lack of knowledge concerning the pathogenesis and the dissemination of the disease, and for both economic and humanitarian reasons. Nine-tenths of the population of Hawaii is composed of peoples in whose native lands leprosy has been endemic, and groups of one of these races continue to be imported for economic reasons.

The territory is geographically located to furnish a hub of transportation for the countries bordering the Pacific Ocean, and the prevalence of disease in the community may be, or may become of national importance at any time. Hence, any measure which may serve to control the dissemination of a communicable disease may be justified, provided it does not inflict uneconomic or inhumane hardships. Hawaii has shown that it can practice segregation of leprosy economically, and this should be easier to bear with increasing resources and production. Segregation can be executed in a manner which will afford reasonable protection of the public health, in the light of present knowledge, and without severe hardship to the individual. The centralization of cases also affords better opportunities for the investigation and treatment of cases.

Treatment of the Individual

The treatment of the sick individual is essential to any program or plan of controlling the spread of a communicable disease and is an humanitarian necessity in any civilized community. In such diseases this can usually be more effectively accomplished within modern institutions operated for the purpose. Something may be accomplished in checking the spread of leprosy in Hawaii by combating the disease in the afflicted patient, and thereby reducing the amount of infection among the people, though opportunity has been afforded through many years for widespread contact. But the relief of human suffering is the goal of all medical measures, and such is very pertinent in many cases of leprosy. Provision was made for the medical care of patients with the establishment of the settlement, and investigations and study of the disease have long been in practice. During the past 25 years the Federal Government, through the United States Public Health Service, has cooperated with the local authorities in these investigations. Studies were directed primarily toward the trial of various remedies, in the hope that one which was specific might be found. Later the trend of investigation was broader and included studies to determine the pathogenesis of the disease; but for the past 10 years attention has again been focused on the development of a specific remedy.

Previous to the past decade most of the remedies, as well as the specific "cures" which have been periodically evolved, have been tried in Hawaii. Both local and general applications have been used. Local treatments were directed toward healing the skin lesions, in the hope of thus eliminating the foci of infection. These measures have included the use of agents to destroy the infected tissue, such as escharotics and vesicants, including carbon dioxide snow and radium, and the use of germicides to destroy the bacillus, either by injection into the affected areas or by inunctions or baths. The systemic measures have involved remedies of supposed germicidal value within the body, as well as those intended to act as alteratives or aids to the formation of specific ferments or immunity. These have included salts of heavy metals, such as gold, mercury, bismuth, arsenic, iron; iodides and other iodine preparations; tuberculin; vaccination by smallpox virus; specific bacterial vaccines; foreign proteids; and chaulmoogra, hydnocarpus, and allied oils. Though individual cases have improved even to quiescence or arrest while under treatment with some one or more of these agents, none has been shown to have a specific therapeutic value. Oils and preparations from oils seem, however, to have been accorded more attention than any other one class of drugs. Of these oils, those which have achieved

the greatest reputation as specifics are chaulmoogra and the allied hydnocarpus oils.

CHAULMOOGRA OIL TREATMENT

Chaulmoogra oil in crude form was used and considered valuable in the treatment of leprosy by East Indians and Chinese before the Christian era. It was used by Hansen of Norway between the years of 1875-1890, but was regarded by him as of no definite value. It was apparently first imported for the treatment of leprosy in Hawaii in 1879, by Dr. J. H. Bemiss, and has been in use locally, to some degree, almost continually since that time. The oil is viscous and difficult to inject, and is irritating to the gastrointestinal tract, and its continued administration over long periods is not tolerated by most patients. Various devices and measures have been adopted to overcome these objectionable features, such as the oral administration of the oil in capsules, in vehicles or emulcents, or with drugs with local anesthetic action; and by parenteral administration of purified, refined, or derived products by subcutaneous, intramuscular, or intravenous injections. It is believed to be necessary to administer these preparations often for years in order to bring about an arrest of the case. However, but few patients seem able to take even the modified preparations by mouth or by injection over such periods; the gastrointestinal tract becomes irritated when they are taken by mouth, and when they are introduced under the skin or into the muscles they are absorbed very slowly, and their repeated injection results in inflammatory masses or abscesses at the site of the injection. The intravenous use of some of the preparations is attended with severe damage to the vessels at the site of injection and with too much potential danger to admit of their general application, though all of these methods of administration have been tried in Hawaii.

The reputed medicinal value in leprosy of these various preparations in different chemical combinations has been hypothetically ascribed to the germicidal action on acid-fast bacteria *in vitro*, or to their circulation in the blood stream as solvents for the fatty capsule of the bacillus of leprosy, so that when brought into contact with it they dissolve it, and allow the tissue ferments to reduce the bacillus to inert granules. Evidence of their circulation as active agents or the detection in remote tissues or in excretions of the end products of the preparations after their administration has not been satisfactorily demonstrated, nor has their pharmacologic action been established. Their therapeutic use is at present empirical, and based on reports of clinical improvement of cases while under their administration.

The various preparations and chemical substitutions reported of value have been used here both extensively and intensively during the past 10 years. That which has been most extensively and persistently used, under prolonged supervision, is the ethyl ester of the mixed acids of chaulmoogra oil. The standard preparation includes a small percentage of iodine, from one-half to 2 per cent, in combination with the ester.

These esters are more fluid and more easily injected. They were first used by oral administration, in a few cases, in Hawaii, by Dr. James T. Wayson, in 1910 and 1911, under the trade name of "Antileprol," without striking or convincing results. Their use was revived in 1918, and has been continuous since that time. Their administration for the past 10 years has been almost entirely by intramuscular injection. During this period there have been about 800 admissions, and most of them have been treated by this method. The results obtained by this treatment are not immediately apparent, since there have been too few control cases observed during the period at issue; and comparisons with results during former 10-year periods, without this treatment, can not be made with even approximate accuracy, because of rapidly changing biological, economic, legislative, and administrative factors. For nearly 30 years previous to 1918 the admission rate of new cases had been falling. In the meantime, the part Hawaiian population, whose admission rate was less than half that of the Hawaiians, was increasing at the rate of about 60 per cent in 10 years; thus the susceptibility of the afflicted population, or their resistance to the infection, probably varied greatly in the different decades. In the earlier decades there was little attention given to the possibility of temporary arrest, or recovery in the disease. The dictum prevailed that "once a leper, always a leper," and segregation was to be permanent. However, in 1909 the principle that cases do become temporarily quiescent or arrested, or recover, was officially recognized by the enactment of a law permitting their temporary release under supervision. This provision has indirectly furnished a gage of the efficiency of treatment, since results are measured largely in terms of the number of patients who are or were temporarily released as quiescent or arrested. The fallacies in such a method of appraisal are several in number. Probably that of most importance is inherent in the tendency of leprosy to undergo periods of recession or quiescence spontaneously, and, perhaps in from 8 to 10 per cent of clinically recognized cases, even to undergo arrest spontaneously. The cases whose syndromes are classified as neural or anesthetic leprosy are more prone to arrest than those classified as nodular or dermal. In other words, the natural or perhaps acquired immunity

of the patient and the type of his disease will influence his temporary release. More recently the view has been adopted that those in whose skin or mucous membranes the bacillus could not be demonstrated were not likely to communicate the disease. Administrators with whom this view was a conviction are revealed by the numbers who were released by them. Again the "neural" cases are those in whose dermal lesions the bacillus is least likely to be found. Hence, upon this basis also these cases were released in greater percentages than those in which the bacillus was easily demonstrable.

The period of quiescence or arrest upon which temporary release is based is a variable one, and the determination of the final result in the individual case can be reached only after several years. This is shown by the fact that among 100 patients who were released and were returned because of recrudescences, there were approximately 60 per cent returned within 3 years from release, 85 per cent within 5 years, and 15 per cent more after 5 years.

It is with full recognition of these fallacies that the results of the treatment in Hawaii are tabulated in the subjoined tables, in conformity with the estimates now in vogue.

TABLE 1.—*Results, in terms of releases and relapses, in all patients admitted to Kalihi Hospital and treated with injections of esters of acids of chaulmoogra oil between January 1, 1921, and December 31, 1925—as of June 30, 1929 (3½ years from date of last admission considered)*

Bacteriological findings on admission	Number of admissions	Number released	Per cent released	Number released died	Number released disappeared	Number released returned	Number remaining on release	Per cent of released remaining on release	Per cent of admissions remaining on release
Positive.....	361	55	15	5	4	35	11	Per cent 20	Per cent 3.0
Negative.....	124	88	71	7	5	23	53	60	42.7
Total.....	485	143	29.4	12	9	58	64	44.7	13

¹ 5 discharged.

² 30 were returned, but 7 were again released within 6 months, since they were not considered active cases. 14 of the 30 cases returned were positive on readmission.

³ 10 discharged.

⁴ 15 of the 64 cases remaining out of segregation have been discharged, and their condition is unknown.

NOTE.—Three of the 11 "Remaining on release," who were bacteriologically positive, have been returned with a relapse since the preparation of this table.

The data in Table 1 include the disposition of all cases admitted during a 5-year period. During this period the medicament and treatment were standardized, and all the cases were confined and under constant hospital supervision, and progress records were maintained. Practically all cases received the chaulmoogra ester treatment, but many were released after so short a period that probably the treatment could have had no effect.

TABLE 2.—*Results, in terms of releases and relapses, in all patients¹ treated with injections of esters of acids of chaulmoogra oil for six months or more between January 1, 1921, and July 1, 1924 (5 years since last treatment completed)*

Bacteriological findings on admission	Number of admissions	Number released	Per cent released	Number released returned	Number remaining on release	Per cent released remaining on release	Per cent admissions remaining on release
Positive.....	205	37	18	29	18	21.6	4.0
Negative.....	55	48	87	15	32	70	60
Total.....	260	85	32.7	44	40	48	16.0

¹ All patients whose history is complete, who are alive, and whose condition is known, with the exception of those discharged.

² 6 discharged.

³ 8 of the 15 cases returned were positive on readmission. 20 were returned, but 5 were again released within 6 months, since they were not considered active cases.

⁴ 9 discharged.

⁵ 15 of the 40 cases remaining out of the segregation have been discharged and their condition is unknown.

NOTE.—Two of the eight "Remaining on release" who were bacteriologically positive have been returned with a relapse since the preparation of this table.

In Table 2 all cases are included who were admitted during the period and who received the ester treatment for more than six months, under constant supervision, and whose hospital and subsequent records are complete. The mean length of treatment among this group was 20 months. It will be noted that the net results obtained by either method of analysis is not at great variance. In other words, from 30 to 33 per cent of those admitted and treated were temporarily released, and more than half of those so released were returned with relapses within three and a half to five years, leaving about 15 to 18 per cent of those treated to continue on release for longer periods. About 80 per cent of those who are so continued on release are of the group of cases in whom the bacillus was not demonstrated. This group forms about 25 per cent of all the cases treated, but furnishes about 60 per cent of all those released. From among those in whom the bacillus was demonstrated there were 15 to 18 per cent released, and 3 to 4 per cent who remained on release for the periods considered.

In view of the fact that 15 to 20 per cent of those known to have relapsed after release, are returned at a date more than five years after the time of release, it may be expected that 2 to 3 per cent of those now recorded as "on release" will be returned with reactivations. Furthermore, the condition of those patients who have been discharged after temporary release is unknown, but 12, or 7 per cent, of 170 patients now resident at the hospital are those who were discharged as recovered and who have been readmitted as active cases.

During the 10-year period previous to the use of the esters, and subsequent to the passage of the temporary release law, there were 115 patients released from the settlement at Kalaupapa. Five of these have been returned with recrudescences during the subsequent 10 years. Those released represent 8.8 per cent of 1,314 patients,

722 of whom were in the settlement at the beginning of the period and 592 who were admitted during the period. However, during the 10 years there were 661 of these who died at the settlement, leaving an annual average number of 653 remaining throughout the period. (One hundred and fifteen releases from among this latter number would represent 17.6 per cent of the patients remaining annually.)

The 115 releases do not comprise all cases whose condition is considered such as to warrant release, since many patients who establish themselves at the settlement, object to leaving it, and remain for from 20 to 30 years as active citizens in it.

Among 100 patients whose average duration of treatment has been three years, but 8 of whom have received less than one year of continuous ester treatment, and all of whom have been under routine weekly inspection and quarterly examination by the author for one year or more, there have been 8 whose condition became apparently quiescent and remained so for about a year. The bacillus was demonstrated in but 2 of these 8. In one of the two the disappearance of the organisms was obtained by local treatments of the single lesion discernible, and in the other the exact effect of the ester treatment is questionable, because of other measures taken. The 6 bacterioscopically negative cases were all of the so-called "neural type," and showed but little change while in the hospital. In other words, they had probably become quiescent before admission.

During the past two years, 51 patients have been temporarily released. These represent about 25 per cent of all those who remained in the hospital for more than six months during that period. Of those released, there were 8 in whom the bacillus had been demonstrated at some time during their hospital residence. One of these convalesced without having received any esters; 2 made but little improvement until they had had an acute eruptive reaction; 2 convalesced following the development of puberty; and 3 were convalescing when admitted. Of the 43 who were persistently bacterioscopically negative, 10 improved while under hospital régime and the ester treatment; 18 made no definite change while under the same treatment conditions, and were considered relatively quiescent upon admission; 15 were convalescing upon admission, or became quiescent while under symptomatic and hygienic treatment without esters. Two of the 51 released have been returned because of reactivations. These were previously bacterioscopically negative and had been under ester treatment more than two years, and reactivated and became bacterioscopically positive while continuing under the treatment as outpatients.

There is good evidence at hand for the assumption that similar conditions prevailed during the periods for which the data are tabu-

lated; namely, that many cases which were temporarily released as quiescent after treatment by the esters were quiescent when admitted, and, further, that others became quiescent spontaneously while under the treatment but not by reason of it. Also many relapses from the releases of those periods, though bacterioscopically negative at that time, are now positive and clinically advanced.

When consideration is given to these various data, it is suggested that a definite proportion of all cases apprehended become spontaneously quiescent or arrested, and remain so for periods which may vary from a few months to several years. The exact percentage whose course is such that these quiescent periods coincide with the experience of any one observer is naturally dependent upon the frequency and duration of the periods of observation by him. Among the cases admitted to segregation in Hawaii, this percentage appears to be between 8 and 15. This is approximately the same as that percentage which remains on release, after having been treated by injection of esters of the chaulmoogric acids for from six months to five years.

The rôle which may be attributed to the specific treatment in accomplishing the quiescent periods in the other 15 to 20 per cent who have been temporarily released is almost impossible to determine, since, as previously stated, an adequate number of control treatments has not been made, and cases improve, become quiescent, or become worse, or relapse after quiescence, both while under the treatment, and without it. Furthermore, the standard preparation in use in these injections is one which is apparently absorbed with exceeding slowness. Full doses of 5 cubic milliliters can not be successively injected over continued periods, into the same site more often than semimonthly, without producing inflammatory masses, or abscesses from which the drug can be readily recovered five or six weeks after the last injection. Even the semimonthly injections when repeated through many months may result in an infiltrated condition at the site. Readily discernible amounts have been found layered in the intermuscular fascia of the buttocks of a patient, one year after the injection. Experimentally, injections subcutaneously or intramuscularly into white rats, guinea pigs, and rabbits, of doses of the same per kilogram weight as that given to man, can be recovered six months later, *in situ*. These findings are not unique, but are in accord with the observations of other investigators, who have found that oily preparations are either layered along the fascial attachments of the muscles, or are pocketed, after intramuscular injection, and are either not absorbed or are absorbed exceedingly slowly. Such a process would seem to be a logical sequence in the introduction of foreign fats parenterally, and would

also preclude any strong probability of specific action by such preparations.

However, both chaulmoogra oil and the various derivatives seem to have the action of stimulating intestinal peristalsis when administered orally. Patients frequently report that they have a better appetite and better intestinal elimination while taking the preparations. Such improvements in general health seem often to be accompanied by improvement in the leprous conditions. It seems probable also that the repeated production of inflammatory reactions, by such injections, with some destruction of tissue, may stimulate processes in the general system which may hold the leprous processes in abeyance, or even cause them to retrogress or arrest. Occasionally the inflammatory reaction may precipitate an acute leprous reaction with subsequent convalescence and quiescence. These effects can not, however, be regarded as specific, since the same phenomena occur frequently following the injections of other oily preparations and during other therapeutic or hygienic measures, or coincident with acute infections and minor affections. They are also prone to occur during the physiological changes of puberty, menstruation, pregnancy, and lactation. In fact, the course of the disease seems to be one of wavelike progressions and recessions, in which the periodicity, intensity, and duration of the activity and inactivity, and latency or quiescence may vary widely, even in the same case. An acute eruptive outbreak may be followed by a prolonged phase of quiescence and apparent arrest, or may initiate a period of continued progression of the process. The recognition of these clinical manifestations will indicate that the appraisal of the efficiency of any specific drug treatment is not warranted until its use has been observed under conditions permitting scientific control and analysis.

SYMPTOMATIC AND HYGIENIC TREATMENT

The pathology which develops in the course of leprosy, together with the phases of progression and retrogression, suggest methods of treatment which have been adopted apparently with profit. The general health, and even the specific lesions, of patients often improve with a rapidity which is striking, under a regimen approaching that of a sanitarium. In attacks of leprous fever with eruption, rest in bed, with restricted diet, increased elimination, and sufficient alkaline medication to render the urine neutral, are usually accompanied with more comfort to the patient, and often by a short course in the eruptive attack. The provision of an adequate diet of better quality than is available to most patients at large, is nearly always accompanied by gains in their weight, and by improvement in their strength and

appearance of health. Special modifications of diet, such as the reduction of the carbohydrate intake have been followed in individual cases by a reduction of as much as 100 per cent in their blood sugar, and a concomitant improvement in the lesions in their skin. In other cases improvement follows closely upon the relief of an intercurrent local or systemic infection. Prompt palliative treatment of minor conditions incidental to leprosy, such as burns, fissures, abrasions, and small ulcers, and the application of measures to improve the circulation in the affected extremities, prevents, or at least delays, the development of many intractable ulcerations with sloughing of tissue and destruction of bone.

Trophic ulcers of several years standing are not uncommonly healed in a few months by surgical measures. Physiotherapeutic measures applied to atrophied muscles, and contractures, accomplish much in the maintenance of muscle tone and mobility of joints, and in the improvement of the circulation of the affected members. Comparatively rapid restoration of nerve function also occurs in individual cases while under these treatments.

In other words, an attempt is made to treat each patient symptomatically, and to place all patients under hygienic and sanitary conditions which will contribute to their general health and favor the marshaling of their resistive and reparative forces. Definite conclusions concerning the efficacy of these methods in hastening or accomplishing recovery from leprosy can not be drawn at this time, but their apparent efficacy in the treatment of analogous diseases, and the results thus far obtained in leprosy seem sufficient to warrant their expansion and more intensive application while investigations are continued toward the development of more definitely remedial measures or agents.

Conclusions

The number of annual admissions, and the probable rate of incidence of leprosy in Hawaii are both falling, and it appears that biological and other agencies may be causative factors in the decline, and that the effect of the mandatory segregation of cases for the past 60 years is indefinite. However, the measure seems to be economically feasible, and is justifiable and desirable in the community, because of its potential value in controlling the dissemination of the disease, and because of its value in facilitating the treatment of the individual patient and the investigation of the pathogenesis and treatment of the disease in general. The use of chaulmoogra oil and its derivatives in Hawaii for 10 years has not been attended by results which indicate that they have any specific therapeutic value, and any effect they may have remains undetermined.

Symptomatic and hygienic treatments under hospital or sanitarium régime probably aid in the recovery of some patients; but

further properly controlled observations over several years are needed to determine this. Studies of pathogenesis, early diagnosis, and treatment with the facilities offered to modern medical research are required for the promotion of more effective results than are being obtained.

THE LEGAL PHASES OF MILK CONTROL¹

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Clean and safe milk can be secured in any community by the rigid enforcement of reasonable health regulations, by persuasive education of milk producers and dealers in the principles of sanitation, and by adequate payment to dairymen of bonuses for milk of high quality and purity. The effective application of any one of these measures will result in the production of a safe and wholesome milk supply. The proper combination of any two of them, whether based on law, education, or economics, will bring about a superior milk supply, while the coordinated use of all three methods will insure the best results of all. This is not theory but fact, as has already been demonstrated by actual experience.

IMPORTANCE OF LEGAL CONTROL

Although the legal supervision of milk is not the only significant factor in the production of a clean and safe milk supply, the employment of necessary police measures, so called, always has been and probably always will be an essential element in milk control. There is, however, some misconception regarding the scope of legal control, many persons apparently believing that it begins and ends in the existence of restrictive, punitive legislation.

Not only must there be statutes commanding what is right and prohibiting what is wrong in dairy practice, but of equal importance is the careful enforcement by administrative officers of reasonable, strictly constitutional, legislative requirements and regulations which have received or are likely to receive the judicial sanction of the courts. Law is not merely a matter of written legislation. Codes are of no permanent value unless they are drafted with due consideration to the rights and privileges of society as a whole, as well as to the immediate scientific aspect of the problem.

If legislative provisions do not conform to the constitutional immunities granted to individual citizens, so far as is consistent with public safety, such laws will not be sustained by the courts, whose function it is to determine the validity and to interpret the meaning

¹ Read before the International Association of Dairy and Milk Inspectors, Memphis, Tenn., Oct. 9, 1929.

of all legislation brought before them in legitimate causes of action.² "In deciding this issue private rights of property, the right to carry on a lawful and necessary business, must be protected against unwarrantable invasion," said the Supreme Court of Alabama in a recent case,³ "and authority must be restrained within reasonable and proper bounds on the one hand; on the other, the health and safety of the people must be conserved."

It will be worth while, therefore, to review some of the legal principles laid down by the courts with respect to milk control. Although the judicial branch of our governments often applies different principles in the fifty or so Federal and State jurisdictions in the United States, considerable unanimity on this particular subject has been exhibited. The courts have been unusually liberal in upholding the reasonable regulation of milk, for they seem to realize that this product is, when pure, the most nearly perfect of the foods of man.⁴

COURT DECISIONS ON MILK

"The health of the citizens * * *," said the Supreme Court of Oregon recently, "to a very large degree depends upon the purity of its milk,"⁵ and the Supreme Court of Illinois pointed out some 15 years ago that "there is no article of food in more general use than milk; none whose impurity or unwholesomeness may more quickly, more widely, and more seriously affect the health of those who use it."⁶ Many other courts have similarly expressed themselves, so that it is now an established principle of law that the regulation of milk supplies so as to prevent their contamination and secure their purity is a legitimate exercise of the police power in the interests of the public health and general welfare.⁷

Nearly 200 court decisions on various phases of milk control have been reported in the United States. To attempt to abstract all of these is obviously not feasible within the limits of this paper, but it will be of value to indicate where more complete references to them may be found.

Apparently not until 1924 was any attempt made to bring together all of the decisions on milk supervision. In that year an article prepared by the author on the legal aspects of milk control was published in Public Health Reports issued by the United States Public Health Service, and subsequently printed in separate form as Reprint No. 939. In it are listed 121 decisions of the courts of last resort

² See Tobey on Public Health Law. Williams & Wilkins Co. 1926.

³ Walker v. City of Birmingham (1927), 216 Ala. 206, 112 So. 823.

⁴ See Crumbley and Tobey: The Most Nearly Perfect Food. Williams & Wilkins. 1920.

⁵ Korth v. Portland (1927), 123 Or. 180, 261 Pac. 805.

⁶ Koy v. Chicago (1914), 263 Ill. 122, 104 N. E. 1104, Ann. Cas. 1015 C. 67.

⁷ See 18 American Law Reports 237, 42 A. L. R. 556, 88 A. L. R. 672.

of 30 States and the Federal Government. Court decisions on pasteurization up to the middle of 1927 were reviewed and discussed by the writer in another article published in Public Health Reports for July 1, 1927 (Reprint No. 1168). In 1928 an article on regulating the production, handling, and distribution of milk was published in Public Health Reports (for August 10, 1928: Reprint No. 1240). This article lists about 150 decisions. Abstracts of single decisions have appeared from time to time in the weekly issues of Public Health Reports.

Since the compilation of the articles mentioned, which together give a fairly adequate picture of the legal phases of milk control, there have been reported about a score of additional cases on the subject. Most of them deal with tuberculin testing, though several are concerned with pasteurization and several with licensing and general regulation. The legal principles enunciated by all of the various decisions may, therefore, be briefly summarized under appropriate headings.

MILK STANDARDS

The promulgation of milk standards which are reasonably calculated to protect public health and to prevent fraud is valid and proper, according to a long line of court decisions. In a recent Pennsylvania case⁸ refusing a permanent injunction against a city milk ordinance, the court referred to a previous decision,⁹ in which it was stated: "The law and the ordinance are based upon the power of municipalities to protect the health of the people by providing for pure milk and such laws have been uniformly sustained by the courts."

DELEGATION OF AUTHORITY

It has long been held that the State may delegate its authority over public health to its political subdivisions, particularly municipal corporations and their boards of health, and this principle holds good with respect to milk regulation. Such a proper delegation of authority has, in fact, been upheld by the United States Supreme Court in a leading case.¹⁰

As a general proposition, health authorities may impose more stringent requirements than are contained in a State law so long as they are in no way inconsistent with the statutes. This has been held in a number of cases and is emphasized in a California decision of this year and a Wisconsin decision of 1928. (See Footnotes 20 and 24.)

⁸ Hoar v. City of Lancaster (1927), 290 Pa. 117, 137 Atl. 664.

⁹ Hill v. Fetherolf (1912), 236 Pa. 70, 84 Atl. 677.

¹⁰ Lieberman v. Van de Carr (1905), 199 U. S. 552, 50 L. Ed. 305, 26 S. Ct. 144.

LICENSING

The licensing by health authorities of dairies, milk dealers, and venders of milk after compliance with reasonable sanitary requirements, and the withholding or revocation of such permits by the authorities for proper cause is a valid exercise of the police power, according to numerous decisions, including a recent Connecticut case,¹¹ and the Alabama decision already mentioned.¹²

The courts will consider the merits of a milk dealer's position if he sues for a writ of mandamus to compel the issuance of the license, but will not grant the writ when there is ample reason for its denial. License requirements must, however, operate equally upon all persons, without discrimination. Thus, an ordinance compelling owners of milk wagons to secure a license, but not requiring other dealers to do so, has been properly held invalid.¹³

DAIRY INSPECTION

In order to satisfy themselves as to sanitary conditions or the eligibility of a dairymen to receive a license to sell milk, health authorities have the legal right to inspect dairies, whether they are within the city where the milk is sold or outside of it. In a recent Florida case¹⁴ it has been held, however, that provisions in a city ordinance requiring a fee of \$25 for inspections of dairies more than 5 miles beyond the city limits and no fee for dairies within the 5-mile limit, were unreasonable and void.

TUBERCULIN TESTING

Prior to 1926 various statutory provisions having for their object the eradication of bovine tuberculosis and the production of milk free from tuberculosis infection had been upheld in nearly a score of court decisions, including one of the United States Supreme Court.¹⁵ This case, decided in 1913, sustained a city ordinance prohibiting the sale, within the city, of milk except from cows that had been tuberculin tested.

The decisions on this subject uphold the regular physical examinations of cattle, the use of the tuberculin test, the destruction, either with or without payment, of diseased animals, the establishment of accredited herds, the levying of taxes to carry out such procedures, and the delegation of the authority for their administration to local boards. The cases were admirably reviewed in an Iowa decision¹⁶

¹¹ *State ex rel. Shelton v. Edwards* (Conn. 1920), 146 Atl. 382.

¹² *Walker v. City of Birmingham*. See (3). See also *Korth v. Portland*. See (6).

¹³ *Read v. Graham* (1907), 31 Ky. L. R. 500, 102 S. W. 860.

¹⁴ *Root v. Mizel* (Fla. 1928), 117 So. 380.

¹⁵ *Adams v. Milwaukee* (1913), 228 U. S. 572, 57 L. Ed. 971, 33 S. Ct. 610.

¹⁶ *Fevold v. Board of Supervisors of Webster County* (Ia. 1926), 210 N. W. 139.

handed down in 1926, where a bovine tuberculosis eradication law was sustained, and the conclusion stated that "It is clear from the foregoing cases that the legislature had the power to determine that the interests of public health required the testing of cattle for tuberculosis, and to determine, in the exercise of a reasonable discretion, what measures should be taken to that end, and whether, in the creation of the accredited area, within which such testing should be compulsory, notice and an opportunity to be heard should be given."

Since that time there have been additional decisions in Connecticut, Iowa, Nebraska, New York, and Ohio.¹⁷ In sustaining the constitutionality of a law providing for the examination, inspection, and testing of cattle for bovine tuberculosis, and their summary destruction under certain circumstances, the Supreme Court of Ohio stated, "these decisions uniformly hold that the summary destruction of the diseased animals does not constitute a taking of private property for public use, but is the abatement of a public nuisance under the police power of the States."

TESTING MILK

Samples of milk may be taken by health authorities for testing in order to ascertain chemical and bacterial content and physical condition, according to a number of decisions.

ACTION ON IMPURE MILK

Milk which is improper for human consumption, and can be proved to be such, may be seized by health authorities and summarily destroyed, or a city may prevent unsafe milk from entering its borders. Both of these propositions have been upheld by the United States Supreme Court as a constitutional exercise of the police power.¹⁸ Penalties may also be imposed for the possession of impure milk.

PASTEURIZATION

In the article on court decisions on pasteurization printed in Public Health Reports for July 1, 1927, previously referred to, there are discussed six cases in five States, all but one of which uphold requirements that milk shall be pasteurized in accordance with standards set by local health authorities, and that it is valid to require all milk except certified, or even all milk sold, to be pasteurized. The one decision *contra* is a Missouri decision,¹⁹ in which it is held that raw

¹⁷ *State ex rel. Shelton v. Edwards* (Conn. 1929), 146 Atl. 382; *Phelps v. Thornburg* (Ia. 1928), 221 N. W. 535; *Peverill v. Board of Supervisors* (Ia. 1928), 222 N. W. 535; *State ex rel. Spillman v. Heldt* (Nebr. 1927), 213 N. W. 578 (part of the law not covered by the title was held void); *State ex rel. Spillman v. Wallace* (Nebr. 1928), 221 N. W. 712; *Ryder v. Pyrke* (1927), 224 N. Y. S. 289; *People v. Teuscher* (N. Y. 1928), 162 N. E. 484; *Kroplin v. Truax* (Ohio 1929), 162 N. E. 496.

¹⁸ *Adams v. Milwaukee*. See footnote 15. *Reid v. Colorado* (1902), 187 U. S. 137, 23 S. Ct. 92, 47 L. ed. 108.

¹⁹ *Knese v. Kinsey* (1928), 314 Mo. 80, 282 S. W. 437.

milk is as good if not better than pasteurized and that it is possible to produce it in a sanitary manner.

In 1928 and 1929 there were reported three additional cases on pasteurization, one each in California, Connecticut, and New York. In one of these²⁰ the requirement that milk should be pasteurized within the city where it is sold was sustained; in another²¹ a provision in a city ordinance making it unlawful to sell milk unless it is from tuberculin-tested cattle or has been pasteurized was upheld, while in the New York case the Court of Appeals left open the question of validity of the pasteurization provision.²²

That the Missouri decision against pasteurization has no standing at law in New York is shown by a statement of the appellate division of the Supreme Court²³ that, "Whatever may be said of other methods of insuring wholesomeness in milk, pasteurization in these days concededly tends to render milk wholesome."

DIPPED MILK

The sale of milk only in sealed containers is a valid requirement, as is the prohibition of the dipping of milk. In a recent Wisconsin case²⁴ an ordinance of the city of Milwaukee requiring all milk to be dispensed in the original containers, well capped and sealed, was sustained.

LIABILITY FOR MILK-BORNE EPIDEMICS

It is now a well-established principle of law in this country that an individual or corporation, whether private or public, which supplies water for human consumption must exercise every reasonable effort to ascertain the quality of the water and take every possible precaution to prevent its contamination and to render it safe.²⁵ If it does not do this it is liable for injury caused by failure to exercise reasonable care in this matter.

It has been argued that a municipality should be liable for negligence in inspecting milk supplies and for failure to insure a clean and safe supply, resulting in outbreaks of disease. The dealer who furnishes polluted milk causing the disease would be liable for damages, as would a city if it were in the business of dispensing milk. In inspecting milk supplies, however, a city is acting in a governmental capacity and is not liable for injuries due to improper action by its officers or employees. Under certain conditions the inspector as an individual might be liable but not the municipality.²⁶

²⁰ *Witt v. Klimm* (Cal. 1929), 274 Pno. 1039.

²¹ *State ex rel. Shelton v. Edwards* (Conn. 1929). See (16).

²² *Lang's Creamery, Inc., v. City of Niagara Falls et al.*, 167 N. E. 484.

²³ *Lang's Creamery, Inc., v. Niagara Falls* (N. Y. 1928), 231 N. Y. S. 368.

²⁴ *Milwaukee v. Childs* (1928), 195 Wis. 148, 217 N. W. 703.

²⁵ *Tobey, J. A.: Liability for Water-Borne Typhoid*. Public Works, April, 1928.

²⁶ See *Tobey on Public Health Law*, 1926. Chapter XII, on Liability.

UNDULANT FEVER

Owing to the prevalent interest in undulant fever, which is definitely known to be spread by infected goat's milk, and in which cow's milk is suspected though not yet conclusively proved to be a dangerous source of the disease in human beings, the aid of legislation against this malady will probably be invoked sooner or later. It should be borne in mind, however, that it is unwise to rush into an orgy of legislation until all of the pertinent scientific facts are known. While public health should be protected without undue delay, such legislation will be all the more sane and sound if it is based on proved and accepted facts. In this case they are not yet at hand, and we should wait until they are.

CONCLUSION

From this brief review of the legal phases of milk control it will readily be seen that the courts have been and continue to be liberal in upholding all reasonable regulation by public authorities of the most important and valuable of all the foods of man. The inevitable result of such proper supervision is to promote the sale and consumption of milk and thus to enhance the physical vitality of the people of this Nation.

PRINCIPAL CAUSES OF DEATH IN THE REGISTRATION AREA, 1928

The Department of Commerce announces that 1,378,675 deaths occurred in 1928 in the registration area in continental United States, corresponding to a death rate of 12 per 1,000 population, as compared with 11.4 in 1927.

This area in 1928 comprised 44 States, the District of Columbia, and 10 cities in nonregistration States, with an estimated population on July 1 of 114,495,000, or 95.4 per cent of the population of the United States. In 1927 the registration area included only 91.3 per cent of the total population.

Increases in rates (per 100,000 population) from those of the preceding year, were from the following principal causes: Diseases of the heart (195.7 to 207.7), cerebral hemorrhage and softening (84 to 87), nephritis (92.5 to 95), diabetes mellitus (17.5 to 19), cancer (95.6 to 95.9), influenza (22.6 to 45.2), and pneumonia, all forms (80.5 to 98). The deaths from these causes numbered 741,739 which is considerably more than half the total number of deaths from all causes. Increases in rates were shown also for measles (4.1 to 5.4) and pellagra (5 to 6.1).

The death rate from all accidental causes increased from 78.4 to 79.2, the individual types of accidents showing the greatest increases

being accidental drowning (6.7 to 7.1), and automobile accidents, excluding collisions with railroad trains and street cars (19.5 to 20.8); if deaths from these collisions were included, the total number from automobile accidents in 1928 would be 26,348 as compared with 23,312 in 1927. The corresponding rates (per 100,000 population) for 1928 and for 1927 are 23.1 and 21.4.

Significant among the decreases in rates from 1927 to 1928 were those from tuberculosis, all forms (80.8 to 79.2), congenital malformations and diseases of early infancy (67.7 to 65.6), whooping cough (6.9 to 5.4), diarrhea and enteritis, under 2 years (21.6 to 20.7), acute anterior poliomyelitis (1.9 to 1.2), typhoid and paratyphoid fever (5.5 to 4.9), and scarlet fever (2.3 to 1.9).

The death rate from railroad accidents decreased from 6.4 to 5.9 and from mine accidents, from 2.5 to 2.3.

Cause of death	Deaths in the registration area in continental United States			
	Number		Rate per 100,000 estimated population	
	1928	1927	1928	1927
All causes ¹	1,378,675	1,236,949	1,204.1	1,141.9
Typhoid and paratyphoid fever.....	5,620	5,905	4.9	5.5
Malaria.....	4,167	2,875	3.6	2.7
Smallpox.....	131	145	.1	.1
Measles.....	6,146	4,433	5.4	4.1
Scarlet fever.....	2,229	2,440	1.9	2.3
Whooping cough.....	6,234	7,445	5.4	6.9
Diphtheria.....	8,263	8,426	7.2	7.8
Influenza.....	51,741	24,471	45.2	22.6
Dysentery.....	3,215	2,605	2.8	2.4
Erysipelas.....	2,724	2,567	2.4	2.4
Acute anterior poliomyelitis.....	1,381	2,013	1.2	1.9
Lethargic encephalitis.....	1,373	1,326	1.2	1.2
Meningococcus meningitis.....	2,923	1,705	2.6	1.6
Tuberculosis (all forms).....	90,559	87,567	79.2	80.8
Of the respiratory system.....	80,285	77,195	70.1	71.3
Of the meninges, central nervous system.....	3,446	3,533	3.0	3.3
Other forms.....	6,928	6,839	6.1	6.3
Syphilis ²	16,826	15,976	14.7	14.7
Cancer and other malignant tumors.....	100,770	103,578	95.9	95.6
Rheumatism.....	4,324	4,177	3.8	3.9
Pellagra.....	6,069	5,418	6.1	5.0
Diabetes mellitus.....	21,747	18,937	19.0	17.5
Menigitis (nonepidemic).....	3,287	3,094	2.9	2.8
Cerebral hemorrhage and softening.....	96,624	91,001	87.0	84.0
Paralysis without specified cause.....	5,827	5,006	5.1	4.6
Diseases of the heart.....	237,840	211,976	207.7	195.7
Diseases of the arteries, atherosoma, aneurysm, etc.....	25,112	23,615	21.9	21.8
Bronchitis.....	5,975	5,851	5.2	5.4
Pneumonia (all forms).....	112,195	87,230	98.0	80.5
Respiratory diseases other than bronchitis and pneumonia (all forms).....	9,969	9,111	8.7	8.4
Diarrhea and enteritis.....	20,730	20,890	26.8	27.6
Diarrhea and enteritis (under 2 years).....	23,663	22,382	20.7	21.6
Diarrhea and enteritis (2 years and over).....	7,067	6,517	6.2	6.0
Appendicitis and typhilitis.....	17,433	16,205	15.2	15.0
Hernia, intestinal obstruction.....	11,954	11,309	10.4	10.4
Cirrhosis of the liver.....	8,630	8,098	7.5	7.5
Nephritis.....	108,813	100,153	95.0	92.5
Puerperal septicemia.....	5,692	5,715	5.0	5.3
Puerperal causes other than puerperal septicemia.....	9,399	9,145	8.7	8.4
Congenital malformations and diseases of early infancy.....	75,159	73,355	65.6	67.7
Suicide.....	15,566	14,536	13.6	13.3
Homicide.....	10,050	9,470	8.8	8.7

(See footnotes at end of table)

Cause of death	Deaths in the registration area in continental United States			
	Number		Rate per 100,000 estimated population	
	1928	1927	1928	1927
Accidental and unspecified external causes	90,712	84,980	79.2	78.4
Burns (conflagration excepted)	6,323	6,089	5.5	5.6
Accidental drowning	8,084	7,295	7.1	6.7
Accidental shooting	2,839	2,741	2.5	2.5
Accidental falls	16,116	15,152	14.1	14.0
Mine accidents	2,630	2,600	2.3	2.5
Machinery accidents	2,180	2,124	1.9	2.0
Railroad accidents	6,798	6,892	5.9	6.4
Collision with automobile	2,041	1,676	1.8	1.5
Other railroad accidents	4,755	5,216	4.2	4.8
Street-car accidents	1,581	1,452	1.4	1.3
Collision with automobile	542	476	.5	.4
Other street-car accidents	1,039	976	.9	.9
Automobile accidents (excluding collision with railroad trains and street cars)	23,765	21,160	20.8	19.5
Injuries by vehicles other than railroad trains, street cars, and automobiles ¹	1,819	1,593	1.6	1.5
Excessive heat (burns excepted)	654	530	.6	.5
Other external causes	17,916	17,261	15.6	15.9
All other defined causes	124,097	116,301	108.4	107.4
Unknown or ill-defined causes	23,560	19,060	20.6	17.6

¹ Exclusive of stillbirths.² Includes tabes dorsalis (locomotor ataxia) and general paralysis of the insane.³ Includes airplane, balloon, and motor-cycle accidents.

RECENT STATE MORTALITY STATISTICS^a

For the information of public health officials and others interested, the rates in the following tables have been computed from monthly mortality data furnished by the State health departments for the latest month for which records are available. For purposes of comparison, the mortality records for a few preceding years are given, the rates being those for the month corresponding to the latest month for which the 1929 rate is available.

Monthly State mortality statistics

[All rates are on an annual basis, and, with the exception of mortality from all causes, infant mortality and congenital malformations and diseases of early infancy, are per 100,000 population]

State	1929									Corresponding month for—			
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	1928	1927	1926	1925

ALL CAUSES, ANNUAL RATE PER 1,000 POPULATION

Alabama (total)	19.6	12.6	11.4	11.2	11.9	11.8	11.1	11.0	10.8	11.1	10.7	10.5	8.1
White	17.3	11.2	10.0	9.0	9.2	9.2	8.7	8.5	8.4	8.7	8.6	8.7	—
Colored	26.9	17.2	15.7	15.3	16.9	16.8	15.7	15.7	15.5	15.7	14.5	13.7	—
California	18.8	15.7	15.4	15.2	13.8	14.2	13.1	—	—	12.8	—	—	—
Connecticut	15.9	14.8	12.2	10.4	11.1	9.0	8.3	8.9	—	9.3	8.4	9.3	9.5
Georgia	15.2	11.2	9.2	9.6	9.1	11.3	10.3	10.0	—	—	—	—	—
Hawaii Territory	18.3	15.2	14.6	14.0	14.5	12.7	12.1	9.7	10.8	11.1	11.8	—	—
Indiana	17.7	14.0	13.4	12.4	12.2	10.8	10.5	10.5	10.9	11.1	10.8	11.4	10.3
Iowa	14.6	12.2	11.0	10.7	10.4	—	9.7	8.6	—	—	—	—	—
Kansas	13.1	12.7	12.1	11.0	9.8	9.6	9.2	—	—	9.0	—	—	—

^a From office of Statistical Investigations, United States Public Health Service.

Monthly State mortality statistics—Continued

[All rates are on an annual basis, and, with the exception of mortality from all causes, infant mortality and congenital malformations and diseases of early infancy, are per 100,000 population]

State	1929										Corresponding month for—			
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	1928	1927	1926	1925	

ALL CAUSES, ANNUAL RATE PER 1,000 POPULATION—continued

Louisiana	18.8	13.4	12.1	11.5	11.2	11.6	11.1	10.8	—	12.2	—	—	—
White	16.0	10.9	9.7	8.8	8.2	8.2	8.3	8.4	—	9.4	—	—	—
Colored	24.1	18.0	16.3	16.5	16.7	16.9	16.0	15.1	—	17.4	—	—	—
Maryland	—	—	—	—	—	—	11.7	11.9	11.1	—	—	—	—
White	—	—	—	—	—	—	10.4	10.8	9.9	—	—	—	—
Colored	—	—	—	—	—	—	18.4	17.5	16.8	—	—	—	—
Michigan	17.0	12.9	13.2	12.7	13.2	11.7	10.8	10.4	11.2	10.6	—	—	—
Minnesota	13.6	9.1	9.7	9.3	9.2	8.6	8.3	8.0	7.9	8.1	—	—	—
Mississippi	23.1	14.0	13.0	11.8	11.1	12.6	11.7	10.7	10.0	10.7	—	—	—
White	19.8	11.9	10.5	8.8	8.4	9.0	8.6	8.4	8.0	8.7	—	—	—
Colored	26.1	15.9	15.3	14.6	13.7	15.9	14.5	12.7	11.7	12.5	—	—	—
Montana	—	—	—	—	—	—	—	—	9.0	—	—	—	—
Nebraska	12.3	11.9	11.0	9.7	—	—	—	—	—	—	—	—	—
New Jersey	17.3	14.0	13.2	12.1	11.3	10.5	10.4	9.0	10.3	9.7	10.4	10.8	10.2
New York ¹	20.3	15.6	14.1	13.5	13.0	16.0	11.1	11.3	11.4	11.7	11.6	11.7	13.3
North Carolina	16.2	15.7	12.6	11.7	11.9	—	—	—	—	—	—	—	—
Pennsylvania	19.4	14.0	12.9	11.7	11.2	9.8	9.6	9.2	—	10.1	9.6	9.8	11.1
Rhode Island	19.1	—	—	—	—	—	—	—	—	—	—	—	—
South Dakota	10.8	9.6	8.9	8.0	9.0	7.1	6.8	8.3	—	—	—	—	—
Tennessee	19.2	14.4	13.8	11.3	10.7	10.9	11.9	10.9	10.8	11.2	10.7	—	—
White	17.2	12.7	11.9	9.6	9.1	9.3	10.1	9.4	9.2	—	—	—	—
Colored	28.4	22.6	22.8	19.8	18.2	18.9	20.9	18.2	18.4	—	—	—	—
Virginia	19.1	13.5	12.0	10.3	9.8	9.7	10.2	8.9	9.0	—	—	—	—
White	17.3	11.3	10.6	8.8	7.8	8.0	8.8	7.4	7.4	—	—	—	—
Colored	23.9	19.1	17.1	14.4	15.1	14.4	14.0	13.0	13.2	—	—	—	—
Wisconsin	14.5	11.8	11.2	11.1	10.6	10.0	—	8.9	—	—	—	—	—

INFANT MORTALITY, PER 1,000 LIVE BIRTHS

Alabama	125	92	86	69	78	73	70	60	61	65	53	64	—
White	100	79	79	62	66	69	67	52	54	57	46	57	—
Colored	171	117	97	80	99	81	75	75	75	79	68	79	—
California	66	73	74	69	65	63	63	—	—	59	—	—	—
Connecticut	74	85	69	61	79	50	44	53	—	52	52	67	750
Hawaii Territory	100	120	129	117	109	108	89	158	81	91	—	—	—
Indiana	97	83	70	69	63	48	52	64	74	64	66	85	75
Iowa	103	75	37	61	48	—	44	43	—	—	54	—	—
Kansas	94	73	77	69	53	49	47	—	—	—	—	—	—
Louisiana	94	75	76	86	91	95	69	64	62	—	—	—	—
Maryland	—	—	—	—	—	—	70	82	78	—	—	—	—
White	—	—	—	—	—	—	60	75	63	—	—	—	—
Colored	—	—	—	—	—	—	105	113	111	—	—	—	—
Michigan	112	71	71	67	69	57	53	51	68	—	—	—	—
Minnesota	83	66	48	51	49	36	39	40	42	38	—	—	—
Montana	—	—	—	—	—	—	—	—	55	—	—	—	—
Nebraska	79	81	71	50	—	—	—	—	—	—	—	—	—
New Jersey	93	70	71	70	59	43	46	56	—	—	—	—	—
New York ¹	87	81	77	70	64	52	45	47	58	60	60	65	86
Pennsylvania	118	95	81	69	65	51	49	56	—	58	52	66	84
Rhode Island	100	—	—	—	—	—	—	—	—	—	—	—	—
South Dakota	85	99	60	63	63	41	50	39	—	—	—	—	—
Tennessee	145	98	89	61	86	63	83	71	63	—	—	—	—
Virginia	140	91	78	61	—	67	75	61	65	—	—	—	—
Wisconsin	105	68	69	59	60	51	50	43	—	—	—	—	—

¹ Exclusive of New York City.

Monthly State mortality statistics—Continued

[All rates are on an annual basis, and, with the exception of mortality from all causes, infant mortality and congenital malformations and diseases of early infancy, are per 100,000 population]

State	1929										Corresponding month for—			
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	1928	1927	1926	1925	
CONGENITAL MALFORMATIONS AND DISEASES OF EARLY INFANCY (150-163), PER 1,000 LIVE BIRTHS														
Alabama (total)...	37	27	31	27	34	29	27	30	31	28	28	24	—	—
White...	39	28	32	29	34	34	30	30	29	27	28	23	—	—
Colored...	29	26	28	24	34	20	21	31	35	29	27	25	—	—
California...	35	33	31	33	32	30	27	—	—	28	—	—	—	—
Iowa...	48	34	36	35	31	—	30	30	—	—	—	—	—	—
Kansas...	37	32	26	30	33	36	31	—	—	29	—	—	—	—
Louisiana...	26	21	29	31	32	34	28	30	—	25	—	—	—	—
Maryland...	—	—	—	—	—	—	—	30	34	35	—	—	—	—
White...	—	—	—	—	—	—	—	36	37	31	—	—	—	—
Colored...	—	—	—	—	—	—	—	36	27	49	—	—	—	—
Michigan...	45	37	34	35	38	33	36	33	33	32	—	—	—	—
Minnesota...	37	35	30	33	32	26	28	29	30	26	—	—	—	—
Nebraska...	30	33	30	31	—	—	—	—	—	—	—	—	—	—
New York ¹ ...	43	43	41	38	41	35	45	35	33	33	35	39	35	37
Pennsylvania...	41	38	33	34	35	32	30	29	—	30	29	30	36	—
Rhode Island...	45	—	—	—	—	—	—	—	—	—	—	—	—	—
South Dakota...	36	43	29	32	29	21	35	16	—	—	—	—	—	—
Tennessee...	36	28	27	20	26	28	29	25	25	—	—	—	—	—

TYPHOID FEVER (1)

Alabama...	1.3	1.4	2.2	5.7	5.5	11.4	12.4	17.4	11.3	19.4	23.3	36.2	29.1	
California...	1.0	2.6	2.1	1.6	1.6	1.9	3.1	—	—	3.6	—	—	—	—
Connecticut...	.7	—	—	—	—	—	1.4	1.5	1.4	1.4	—	2.9	—	6.0
Georgia...	2.2	2.0	2.6	5.3	7.4	12.2	20.2	19.9	—	—	—	—	—	2.3
Hawaii Territory...	—	3.7	13.5	3.5	3.4	3.5	6.6	—	6.8	13.9	11.2	—	—	—
Illinois...	2.1	.9	.5	.9	.5	1.6	2.2	1.9	2.5	5.6	5.4	6.1	9.0	—
Indiana...	1.5	.4	.4	3.4	1.5	2.3	7.0	5.6	5.0	8.8	8.9	14.9	—	—
Iowa...	1.5	1.1	.5	2.6	1.0	—	0.7	3.4	—	—	—	—	—	—
Kansas...	1.3	1.4	1.9	1.3	1.3	5.3	3.2	—	—	5.1	—	—	—	—
Kentucky...	6.5	5.1	3.7	—	—	—	—	—	—	—	—	—	—	—
Louisiana...	6.0	4.0	3.6	11.2	14.5	10.0	17.5	16.9	—	12.1	—	—	—	—
Maryland...	—	—	—	—	—	—	—	5.1	8.0	7.5	—	—	—	—
Michigan...	1.5	.9	.3	1.9	2.1	1.9	1.5	2.8	3.5	2.4	—	—	—	—
Minnesota...	—	.4	—	.5	.4	1.3	2.6	1.3	1.8	1.0	—	—	—	—
Mississippi...	6.6	2.9	6.6	4.1	7.2	15.6	19.7	19.1	15.6	15.6	—	—	—	—
Montana...	—	—	—	—	—	—	—	—	17.7	—	—	—	—	—
Nebraska...	3.3	.9	.8	—	—	—	—	—	—	—	—	—	—	—
New Jersey...	.6	1.0	.3	.3	1.9	3	1.9	1.8	2.2	2.5	—	—	—	—
New York ¹ ...	1.0	.9	.4	.6	.6	2.1	2.3	2.1	3.2	2.4	2.7	4.1	7.3	—
North Carolina...	2.4	1.8	2.4	2.1	3.2	—	—	—	—	—	—	—	—	—
Pennsylvania...	1.4	2.0	.8	.4	1.8	2.3	2.5	2.5	—	3.3	4.7	4.7	8.1	—
South Carolina...	3.2	9.1	3.2	3.9	10.1	22.8	25.3	27.8	20.2	28.1	46.2	—	—	—
South Dakota...	3.3	3.7	—	—	—	—	3.5	1.7	3.3	—	—	—	—	—
Tennessee...	2.4	2.1	2.8	2.9	5.2	7.3	19.3	31.1	25.3	30.6	—	—	—	—
Virginia...	2.7	.5	.9	.9	5.0	3.8	7.8	5.9	4.3	.5	—	—	—	—
Wisconsin...	.4	1.3	2.0	1.2	.4	.8	.8	2.4	—	—	—	—	—	—

MEASLES (7)

Alabama...	3.9	3.4	3.9	5.7	3.2	2.8	1.4	0.5	0.5	0.5	2.4	1.5	—	
California...	—	1.3	—	.5	—	.8	—	—	—	—	.5	—	—	
Connecticut...	3.6	4.8	7.2	7.4	6.5	3.7	.7	—	—	—	7	1.5	.8	.8
Georgia...	1.1	2.9	1.5	3.0	2.2	—	—	—	—	—	—	—	—	—
Hawaii Territory...	3.4	3.7	3.4	—	16.9	17.4	18.2	3.3	—	—	8.5	—	—	—
Illinois...	2.9	3.9	6.0	10.1	9.7	6.9	2.1	.8	2	.5	.3	.8	.7	—
Indiana...	3.0	4.0	10.4	13.4	7.0	5.0	.4	.4	—	—	—	1.6	—	—
Iowa...	1.0	.5	1.9	2.5	1.9	—	—	—	—	—	—	—	—	—
Kansas...	.7	3.8	5.3	7.1	7.3	1.3	—	—	—	—	1.3	—	—	—
Kentucky...	1.4	4.1	3.7	—	—	—	—	—	—	—	—	—	—	—
Louisiana...	4.8	5.3	0.0	4.4	4.2	—	2.4	—	—	—	3.6	—	—	—
Maryland...	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Michigan...	1.3	1.1	5.1	7.7	9.2	5.0	2.3	.3	—	—	—	—	—	—
Minnesota...	5.2	2.6	5.2	5.8	4.3	4.0	1.3	—	—	—	—	—	—	—
Mississippi...	5.3	12.4	18.4	7.5	5.3	2.0	2.0	.7	—	—	1.4	—	—	—
Nebraska...	1.9	4.2	.9	—	—	—	—	—	—	—	—	—	—	—
New Jersey...	.9	2.4	1.8	2.2	.6	1.0	.3	.3	—	—	.3	—	—	—

¹ Exclusive of New York City.

Monthly State mortality statistics—Continued

[All rates are on an annual basis, and, with the exception of mortality from all causes, infant mortality and congenital malformations and diseases of early infancy, are per 100,000 population]

State	1929									Corresponding month for—			
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	1928	1927	1926	1925

MEASLES (7)—continued

New York ¹	5.8	4.4	5.0	3.6	4.1	2.1	1.0	1.4	.6	.4	.4	.5	.5
North Carolina	1.2	2.7	.4	.8	.8								
Pennsylvania	7.4	7.0	6.5	6.0	5.9	3.8	1.8	1.0		1.3	1.0	2.2	4.6
Rhode Island	18.1												
South Carolina													
South Dakota													
Tennessee													
Virginia	2.7	1.0	3.2	2.4	3.7	.9	.5	.9		1.0			
Wisconsin	2.0	2.2	2.4	7.0	6.0	4.5	2.0						

SCARLET FEVER (8)

Alabama	1.7	1.4	1.7							1.0		2.0	
California	1.8	2.6	2.6	3.7	4.4	2.0	.8			0.5			
Connecticut	2.2		2.9	.7	.7	.7	1.4	1.4					.8
Georgia	1.5	2.0		1.1	.7					1.5			
Illinois	4.9	5.6	5.6	6.2	5.3	3.7	3.8	.6	.8	.8	1.3	1.0	.8
Indiana	6.3	5.7	4.4	3.8	4.4	3.4	1.5	1.9	.8	.4	1.2		
Iowa	2.4	4.3	2.9	3.5	1.9		1.5	1.5					
Kansas	5.8	5.0	6.4	6.0	2.6	2.7							
Kentucky	5.5	6.1	5.1										
Louisiana				1.2	.6	1.8							
Maryland													
Michigan	4.4	5.4	5.4	7.7	3.3	2.7	1.5	.5	.8	.3			
Minnesota	6.1	2.2	3.9	2.7	2.2		1.3	1.7	1.3	.4			
Montana										4.4			
Nebraska	6.7	8.3	5.9	9.5									
New Jersey	1.5	1.4	1.2	2.2	1.5	1.6	.3		1.0	1.0			
New York ¹	4.5	3.7	3.1	2.6	2.3	1.1	.8	1.4	1.1		.2	1.4	.8
North Carolina	2.4	1.8	1.2	2.9	2.4								
Pennsylvania	4.8	3.3	3.0	3.3	3.1	2.1	1.4	1.0			.7	.7	.9
Rhode Island	3.3												
South Carolina	1.3					1.3	.7	1.3					
South Dakota	1.7	5.6	6.0			6.7	5.2		1.7				
Tennessee	1.4	4.7	3.3	2.9	2.8			.9	.5	1.5	.5		
Virginia	1.4	1.0	1.8			.5	.5		.5	.5			
Wisconsin	2.4	4.4	3.6	5.4	.4	2.9	2.0	1.2					

WHOOPING COUGH (9)

Alabama	9.1	10.1	7.0	10.4	10.4	10.4	17.4	11.9	6.6	6.1	11.6	7.3	3.9
California	7.0	4.3	7.2	8.3	9.0	10.2	7.8			9.6			
Connecticut	6.5	4.0	2.9	.7	2.2	3.0	2.2	2.2		8.8	1.5	3.0	10.0
Georgia	4.0	3.7	5.5	4.9	4.4	2.2	13.7	15.8	13.6				
Hawaii Territory	30.4	37.4	40.5	83.7	67.5	33.3	16.4	6.6	13.6	7.0			
Illinois	3.0	2.3	2.6	3.5	4.3	3.4	3.2	5.9	5.1	3.9	5.3	3.5	3.3
Indiana	7.0	6.2	6.2	6.5	7.0	6.5	4.8	6.7	4.2	3.4	5.8	7.0	
Iowa	5.3	3.2	6.3	8.0	4.8			4.8	4.8				
Kansas	5.8	7.8	5.8	4.6	2.6	2.7	4.5						
Kentucky	10.6	13.8	8.8										
Louisiana	5.4	6.7	6.0	7.5	6.0	6.0	11.5	4.8		7.2			
Maryland													
Michigan	7.2	7.7	4.0	7.2	8.2	5.6	3.3	7.4	6.6	4.8			
Minnesota	9.1	6.1	4.3	4.0	5.2	.9	4.8	8.0	4.0	1.3			
Mississippi	11.2	10.2	11.2	14.3	10.5	17.7	12.3	11.8	8.2	2.7			
Montana										4.4			
Nebraska	3.3	1.9	5.0	1.7									
New Jersey	13.3	6.8	6.2	5.7	4.0	2.2	2.8	4.9	4.1	4.5			
New York ¹	6.2	5.0	5.4	4.3	3.3	2.1	1.3	4.1	2.6	3.9	3.1	4.1	2.0
North Carolina	9.2	8.4	6.2	7.5	9.6								
Pennsylvania	12.4	8.4	5.2	4.8	4.3	4.3	5.0	6.0		6.1	4.1	8.5	10.0
Rhode Island	3.3												
South Carolina	3.2	9.1	7.6	13.1	17.1	22.8	18.3	15.8	9.1	3.3	16.5		
South Dakota	1.7	3.7	3.3	1.7	11.7	6.9	1.7	1.7					
Tennessee	10.4	6.8	4.2	6.3	7.5	6.3	13.7	10.0	7.8	6.3			
Virginia	18.3	9.1	6.9	6.1	8.2	9.9	12.8	16.0	9.4				
Wisconsin	2.4	3.5	3.2	6.6	5.6	4.9	4.4	4.0					

¹ Exclusive of New York City.

Monthly State mortality statistics—Continued

[All rates are on an annual basis, and, with the exception of mortality from all causes, infant mortality and congenital malformations and diseases of early infancy, are per 100,000 population]

State	1929										Corresponding month for—			
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	1928	1927	1926	1925	
DIPHTHERIA (10)														
Alabama	10.0	3.9	4.3	2.8	2.3	1.4	2.8	7.3	16.6	10.0	19.9	7.8	8.9	
California	4.9	3.7	1.8	3.7	3.4	4.3	1.8	—	—	5.2	—	—	—	
Connecticut	3.6	4.0	2.9	3.7	4.3	3.7	2.9	1.4	—	2.9	5.9	1.5	3.1	
Georgia	7.4	2.4	1.8	1.9	22.4	20.9	11.4	5.2	—	—	—	—	—	
Hawaii Territory	3.4	11.2	13.5	20.9	6.7	10.5	6.6	3.3	13.6	7.0	18.7	—	—	
Illinois	7.5	8.8	10.4	11.6	12.6	11.1	9.1	7.0	4.6	6.6	5.6	3.9	3.9	
Indiana	5.9	5.7	3.7	5.0	3.3	1.5	2.2	3.0	4.2	4.6	3.9	2.3	—	
Iowa	—	—	—	2.0	1.5	—	2.4	1.0	—	—	—	—	—	
Kansas	2.6	2.8	4.5	4.6	1.3	1.3	.6	—	—	—	.6	—	—	
Kentucky	12.5	10.2	5.1	—	—	—	—	—	—	—	3.6	—	—	
Louisiana	4.2	8.7	3.0	2.5	5.4	3.1	3.6	6.0	—	—	—	—	—	
Maryland	—	—	—	—	—	—	1.5	5.1	1.5	—	—	—	—	
Michigan	12.1	8.5	12.6	10.3	11.3	13.0	9.8	6.9	8.5	7.2	—	—	—	
Minnesota	2.2	2.2	3.0	2.2	2.6	.9	2.6	1.7	1.8	2.2	—	—	—	
Mississippi	6.6	5.8	2.0	2.0	—	—	1.4	1.3	5.3	6.8	9.5	—	—	
Montana	—	—	—	—	—	—	—	—	8.9	—	—	—	—	
Nebraska	5.0	5.6	2.5	4.3	—	—	—	—	—	—	—	—	—	
New Jersey	20.6	13.0	10.2	10.5	10.5	9.9	8.9	5.5	6.7	6.0	—	—	—	
New York ¹	4.5	3.4	3.7	2.4	3.1	4.1	2.1	2.7	1.7	3.1	3.5	2.0	5.3	
North Carolina	16.8	10.2	4.8	4.1	1.6	—	—	—	—	—	—	—	—	
Pennsylvania	10.3	7.1	9.2	6.8	5.7	5.7	4.4	2.9	—	3.7	4.2	5.5	5.6	
Rhode Island	6.6	—	—	—	—	—	—	—	—	—	—	—	—	
South Carolina	6.3	4.9	6.9	2.0	4.4	3.3	1.9	10.1	10.4	11.1	11.9	—	—	
South Dakota	—	1.9	—	3.5	3.3	—	—	—	—	—	—	—	—	
Tennessee	7.5	4.7	4.7	2.9	3.3	2.9	1.4	6.1	8.8	12.2	—	—	—	
Virginia	8.2	4.6	7.8	1.9	1.4	1.4	2.7	3.2	10.4	5.2	—	—	—	
Wisconsin	2.8	3.1	2.0	.8	4.4	2.5	1.6	2.0	—	—	—	—	—	
INFLUENZA (11)														
Alabama (total)	762.7	236.7	117.9	53.2	43.6	10.5	9.6	9.2	9.9	18.5	12.6	12.7	5.4	
White	711.4	241.3	110.0	47.1	32.2	18.1	8.4	6.3	10.1	12.3	12.8	11.5	—	
Colored	973.1	261.0	150.4	64.0	77.8	21.8	11.9	14.5	9.5	30.0	12.2	14.9	—	
California	94.5	47.2	40.1	23.5	13.4	7.5	5.2	—	—	12.1	—	—	—	
Connecticut	196.6	133.5	40.9	21.5	9.3	3.7	2.9	2.2	—	2.9	3.7	3.0	2.3	
Georgia	503.2	164.0	77.2	74.5	22.4	20.9	11.4	5.2	—	—	—	—	—	
Hawaii Territory	23.6	20.9	23.6	38.3	27.0	20.9	19.7	13.2	6.8	45.3	7.5	—	—	
Illinois	212.5	71.6	47.8	20.5	15.0	7.1	3.5	3.3	4.8	—	—	—	—	
Indiana	341.4	131.3	60.0	36.4	21.1	13.0	11.1	8.5	10.3	11.9	12.4	9.7	11.0	
Iowa	312.3	101.5	57.7	28.1	28.6	—	9.7	5.3	—	—	—	—	—	
Kansas	221.4	120.8	85.3	46.4	29.5	21.2	12.2	—	—	14.8	—	—	—	
Kentucky	818.6	281.9	98.7	—	—	—	—	—	—	—	—	—	—	
Louisiana	490.9	179.8	95.4	41.8	19.9	11.8	11.5	11.5	—	29.0	—	—	—	
White	424.3	140.4	76.5	30.8	14.9	9.6	8.4	9.3	—	21.4	—	—	—	
Colored	613.2	252.2	130.2	61.9	29.1	15.9	17.1	15.4	—	42.8	—	—	—	
Maryland	—	—	—	—	—	—	2.2	.7	5.3	—	—	—	—	
White	—	—	—	—	—	—	.9	.9	4.5	—	—	—	—	
Colored	—	—	—	—	—	—	9.1	—	9.4	—	—	—	—	
Michigan	237.7	76.9	39.5	24.1	21.8	10.2	6.7	5.1	6.4	8.7	—	—	—	
Minnesota	231.9	55.4	38.9	19.2	17.7	6.7	4.3	5.2	6.3	8.0	—	—	—	
Mississippi	897.9	172.5	118.3	42.8	27.0	17.7	11.2	7.9	6.8	11.5	—	—	—	
White	914.1	154.2	102.0	34.2	20.7	11.4	17.6	8.3	5.7	10.0	—	—	—	
Colored	884.0	159.6	133.5	60.8	32.7	23.4	15.8	7.5	7.8	13.0	—	—	—	
Montana	—	—	—	—	—	—	—	—	11.1	—	—	—	—	
Nebraska	219.9	108.3	59.4	32.8	—	—	—	—	—	—	—	—	—	
New Jersey	164.2	50.4	25.0	15.0	10.2	2.2	2.2	1.8	1.6	4.8	3.2	3.0	3.0	
New York ¹	235.4	98.2	36.6	23.1	13.0	3.3	2.0	2.0	3.2	4.1	6.2	3.2	3.5	
North Carolina	375.5	281.3	116.2	59.2	37.3	—	—	—	—	—	—	—	—	
Pennsylvania	357.9	95.6	55.0	26.9	20.6	10.0	6.7	4.9	—	7.7	5.1	7.1	7.7	
Rhode Island	231.9	—	—	—	—	—	—	—	—	—	—	—	—	
South Carolina	382.2	172.7	98.5	51.6	23.7	17.6	13.9	10.7	9.1	11.1	4.6	—	—	
South Dakota	249.1	124.1	45.2	41.5	33.5	15.6	10.0	11.7	—	—	—	—	—	
Tennessee	644.7	252.2	153.9	71.0	33.4	18.0	13.2	10.4	5.8	9.7	6.9	—	—	
White	596.1	238.2	141.4	61.6	27.8	14.7	11.9	9.7	5.9	—	—	—	—	
Colored	890.3	319.8	214.6	116.6	60.5	34.1	19.2	13.7	5.7	—	—	—	—	
Virginia	591.2	192.9	88.2	43.7	19.2	9.9	5.0	5.9	9.0	—	—	—	—	
White	585.8	156.7	63.2	36.6	11.4	5.9	1.9	7.0	3.9	—	—	—	—	
Colored	605.3	257.5	153.8	80.3	39.7	20.6	13.2	3.3	22.2	—	—	—	—	
Wisconsin	269.1	75.9	36.3	27.2	20.7	9.9	7.2	6.0	—	—	—	—	—	

¹ Exclusive of New York City.

December 20, 1929

Monthly State mortality statistics—Continued

[All rates are on an annual basis, and, with the exception of mortality from all causes, infant mortality and congenital malformations and diseases of early infancy, are per 100,000 population]

State	1929										Corresponding month for—			
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	1928	1927	1926	1925	

POLIOMYELITIS (22)

Alabama	0.4	2.4	0.4	0.9		2.8	0.5	1.4	0.5		0.5	2.4	
California	.3	.9	.8	.8	2.1	.8	.8	.7	.7		1.6		
Connecticut						1.5	.7	.7	.7		1.5	.7	1.5
Hawaii Territory					3.4				3.3	3.4			
Illinois					.3	.2	.2				.3		
Indiana	.7		.4			.4					.4		
Iowa	1.9		1.5	.5				.5	1.0				
Kansas	.6		.6			1.3	.6						
Kentucky	.9	1.0	.5										
Louisiana	.7	1.2	1.3	.6			.6	.6				2.4	
Maryland													
Michigan	1.3	.3	.8	.5	.5	.8	1.0	1.0	2.1		.5		
Minnesota		.9			.4	.9					.9	9.4	
Mississippi		1.5	.7	1.4			2.0	2.0				2.0	
New Jersey	.3	.3	.6		.3	.6	.6	.3	.3		.6		
New York ¹	.6	.7	.2	.2	.4	.2	1.4	3.3			7.6	3.1	6.8
North Carolina	.4	.4	1.6	1.2	.8						1.2	1.9	.6
Pennsylvania	.6	.6	.4		.5	.7	.6	.7					.8
South Carolina	.6	.7	.6		1.3		.6	.6	.7		2.0		
South Dakota	3.3	3.7			5.0								
Tennessee	.9	.5	.9	.5	1.9	1.5	1.9	1.4	1.0		1.9		
Virginia	.5			1.4	.9							1.9	
Wisconsin		.4				.8	1.2	1.4					

LETHARGIC ENCEPHALITIS (23)

Alabama	1.8	0.5	2.3	1.9	0.5	0.5	0.9	0.5	0.5				
California	3.4	1.4	1.0	2.4	1.6	1.3	1.3				0.5		
Connecticut	.7	3.2	2.2		1.4	.7	.7	1.4			.7		
Hawaii Territory								3.3	3.3	3.4			
Illinois	.3	2.1	1.1	1.4	1.1		.7	.5	.2	.2			
Indiana	1.9	.8	1.1	1.5	.7	1.1	.7	.7	.4	.8			
Iowa	2.4	1.0	2.4	1.0	1.5								
Kansas	.6		.6	.7	2.6			1.3			1.3		
Kentucky	.5	.5											
Louisiana			1.2			1.8							
Maryland											5.4		
Michigan	1.5	1.1	1.0	1.6	2.3	2.1	.5	.3	1.1	1.6			
Minnesota	3.5	2.2	2.0	1.8	1.7	4.0	2.0	.9	.9	3.1			
Mississippi		.7	.7	1.4	.7			1.3		1.4			
Montana										2.2			
Nebraska		2.8	1.7										
New Jersey	2.2	1.7	1.5	1.0	1.2	1.0	.6	1.2	.3	1.9			
New York ¹	1.2	.9	1.2	.7	.8	2.4	.6	1.0	.2	.7	1.6	1.6	0.3
North Carolina	.4	1.8	.8	.4	.4								
Pennsylvania	1.3	2.0	1.0	1.2	1.2	.6	1.0	.7			1.5	.9	.8
South Carolina	1.3	1.4	5.1	2.0	4.4	3.3		1.3	1.3	2.6	2.6		
South Dakota	1.7				1.7		1.7						
Tennessee			1.0			1.5		.5	1.0	.9	.6	1.5	
Virginia	2.3	.6	1.4	2.4	.5	.9		1.4	.5				
Wisconsin	.4	2.2	2.0	1.6	2.8	2.5	2.8	.4					

¹ Exclusive of New York City.

Monthly State mortality statistics—Continued

[All rates are on an annual basis, and, with the exception of mortality from all causes, infant mortality and congenital malformations and diseases of early infancy, are per 100,000 population]

State	1929										Corresponding month for—			
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	1928	1927	1926	1925	
MENINGOCOCCUS MENINGITIS (24)														
Alabama	1.4	3.9	1.5	0.5	0.0	0.5	0.5	0.5	0.5	3.1	1.5	1.5	0.8	0.8
California	11.1	10.3	14.2	12.6	13.2	9.4	4.7	—	—	—	—	—	—	—
Connecticut	2.4	3.6	7	1.4	—	—	—	—	—	—	—	—	—	—
Hawaii Territory	10.1	15.7	70.9	38.3	50.6	27.9	19.7	3.3	6.8	3.5	3.7	—	—	—
Illinois	4.8	7.1	6.7	2.8	3.2	2.6	2.1	2.1	—	—	1.3	2.0	.5	.8
Indiana	1.1	—	1.1	1.9	3.0	1.9	1.1	—	1.1	—	—	—	.4	—
Iowa	2.4	3.8	2.9	2.0	1.5	—	1.9	1.0	—	—	—	—	—	—
Kansas	3.8	5.0	3.8	2.7	3.2	2.0	3.2	—	—	—	—	—	—	—
Louisiana	1.2	4.7	4.2	5.6	1.8	1.9	.6	1.8	—	—	—	—	—	—
Maryland	—	—	—	—	—	—	—	—	—	—	—	—	.8	—
Michigan	6.9	12.5	20.8	37.9	41.8	27.8	10.2	11.0	7.7	2.9	—	—	—	—
Minnesota	3.0	2.6	.4	2.2	1.7	1.3	3.5	1.7	.4	1.3	—	—	—	—
Mississippi	1.3	.7	.7	—	—	.7	1.3	—	—	—	—	—	—	—
Montana	—	—	—	—	—	—	—	—	—	—	—	—	4.4	—
Nebraska	.8	7.4	6.7	2.6	—	—	—	—	—	—	—	—	—	—
New Jersey	3.4	2.6	2.5	2.2	4.6	2.2	2.2	1.2	1.9	.8	—	—	—	—
New York ¹	.6	1.8	1.0	2.1	1.4	1.6	1.0	2.1	.2	2.8	.2	.2	.6	—
North Carolina	—	.4	.4	.4	1.2	—	—	—	—	—	—	—	—	—
Pennsylvania	1.7	2.8	3.1	2.2	3.4	1.2	1.6	2.4	—	.9	.8	.9	.8	—
Rhode Island	1.6	—	—	—	—	—	—	—	—	—	—	—	—	—
South Carolina	1.3	2.8	3.2	3.9	2.5	2.0	1.9	.6	3.9	.7	2.0	—	—	—
South Dakota	3.7	10.0	1.7	—	—	—	—	—	—	—	—	—	—	—
Tennessee	1.9	1.0	3.9	3.4	1.9	1.5	2.8	.5	1.5	.5	—	—	—	—
Virginia	1.8	1.5	1.8	1.4	2.7	.9	1.4	—	.9	—	—	—	—	—
Wisconsin	.4	6.6	10.0	2.0	3.6	4.5	1.2	2.4	—	—	—	—	—	—
TUBERCULOSIS, ALL FORMS (31-37)														
Alabama (total)	76.6	83.6	80.5	91.8	88.1	81.3	86.5	78.7	82.8	77.5	81.4	90.4	76.4	—
White	54.7	62.9	51.9	55.0	45.6	39.1	45.6	37.8	44.9	50.9	45.2	41.2	—	—
Colored	129.2	134.2	146.4	159.4	167.4	159.4	163.5	155.6	154.0	128.1	146.8	177.9	—	—
California	137.5	147.9	149.4	138.6	139.6	130.3	122.8	—	—	—	133.4	—	—	—
Connecticut	66.0	77.1	68.2	64.5	66.0	61.5	61.7	61.0	—	—	55.4	47.5	74.8	59.3
Georgia	64.3	60.6	66.9	74.5	72.4	85.9	68.7	59.2	—	—	—	—	—	—
Hawaii Territory	108.0	80.6	91.2	121.0	9.124.9	129.0	111.8	105.2	105.5	104.6	112.3	—	—	—
Illinois	71.2	84.3	95.2	98.4	70.7	73.9	68.3	64.8	54.1	68.9	64.6	67.1	68.3	—
Indiana	78.2	76.8	79.7	81.6	74.9	81.2	58.2	63.4	63.2	57.5	60.3	61.9	70.4	—
Iowa	34.9	38.7	35.4	40.6	37.3	—	35.9	36.4	—	—	—	—	—	—
Kansas	39.1	50.4	41.1	36.5	41.1	42.4	34.7	—	—	—	38.5	—	—	—
Kentucky	116.2	121.0	91.3	—	—	—	—	—	—	—	—	—	—	—
Louisiana	128.0	91.6	92.4	104.2	90.6	90.2	83.3	70.0	—	—	96.0	—	—	—
White	88.6	61.9	50.4	54.9	47.6	53.0	42.9	36.4	—	—	52.2	—	—	—
Colored	200.4	146.0	194.7	169.6	184.1	157.6	131.9	—	—	—	176.4	—	—	—
Maryland	—	—	—	—	—	—	—	—	—	—	—	—	—	—
White	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Colored	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Michigan	80.0	72.1	72.3	80.6	85.7	71.3	66.2	60.0	67.3	50.1	—	—	—	—
Minnesota	49.3	48.4	60.1	65.3	55.8	57.2	49.7	51.9	46.5	50.1	—	—	—	—
Mississippi	84.2	72.1	96.0	98.5	91.4	95.8	83.5	67.7	67.3	78.1	—	—	—	—
White	45.5	45.8	53.8	41.3	38.6	39.9	30.3	33.1	27.1	37.0	—	—	—	—
Colored	110.6	96.2	134.7	150.9	130.8	147.0	132.2	99.3	103.9	115.6	—	—	—	—
Montana	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Nebraska	30.9	38.9	27.6	42.3	—	—	268.8	209.6	188.3	—	—	—	—	—
New Jersey	76.4	84.3	84.7	84.7	76.1	70.1	75.5	72.4	65.9	65.9	60.0	85.3	71.0	—
New York ¹	84.8	82.8	76.3	80.6	82.3	78.4	64.7	70	57.7	70.0	70.4	72.0	82.0	—
North Carolina	91.0	91.0	89.4	102.7	91.4	—	—	—	—	—	—	—	—	—
Pennsylvania	79.6	69.4	69.7	68.8	69.6	63.6	62.3	66.0	—	59.5	65.7	67.6	72.2	—
Rhode Island	65.8	—	—	—	—	—	—	—	44.3	—	—	—	—	—
South Carolina	64.4	65.0	77.7	71.2	87.8	94.0	70.0	69.5	64.6	63.5	69.2	—	—	—
South Dakota	53.5	57.4	48.5	48.4	60.2	48.4	55.2	65.2	—	—	—	—	—	—
Tennessee	140.7	145.9	130.3	146.9	132.3	140.5	112.9	105.9	103.1	99.7	93.0	—	—	—
White	121.5	119.4	113.0	107.4	102.8	109.1	79.0	81.2	78.6	—	—	—	—	—
Colored	233.8	274.1	266.8	338.3	280.6	292.8	277.6	225.4	221.5	—	—	—	—	—
Virginia	116.1	85.6	94.1	93.6	96.9	78.4	82.3	70.8	74.2	60.0	—	—	—	—
White	101.8	65.8	53.3	53.6	58.8	45.7	49.3	48.7	48.3	35.9	—	—	—	—
Colored	153.8	137.3	157.1	198.3	190.8	164.1	168.7	150.5	141.0	155.5	—	—	—	—
Wisconsin	44.3	47.7	63.8	72.9	47.8	63.4	48.3	40.3	—	—	—	—	—	—

¹ Exclusive of New York City.

Monthly State mortality statistics—Continued

[All rates are on an annual basis, and, with the exception of mortality from all causes, infant mortality and congenital malformations and diseases of early infancy, are per 100,000 population]

State	1929									Corresponding month for—			
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	1928	1927	1926	1925
CANCER, ALL FORMS (43-49)													
Alabama	33.1	45.9	41.3	45.0	48.2	54.7	50.8	44.4	53.4	50.3	56.2	45.5	50.3
White	38.6	40.7	46.3	55.8	52.6	53.6	58.9	40.6	50.4	52.1	52.7	45.8	—
Colored	27.7	30.7	38.2	40.9	39.6	50.9	35.6	51.4	42.3	46.3	62.5	44.8	—
California	151.4	129.6	135.4	140.7	146.0	144.5	138.8	—	—	127.7	—	—	—
Connecticut	98.3	114.4	118.4	103.0	116.2	100.8	103.3	110.8	—	110.2	87.6	100.4	104.7
Georgia	35.7	41.5	41.5	36.1	39.7	50.1	44.5	47.4	—	—	—	—	—
Hawaii Territory	54.0	89.6	54.0	59.3	67.5	80.2	59.2	36.2	91.8	38.3	52.4	—	—
Indiana	100.8	98.5	90.0	101.9	110.9	90.0	107.1	84.9	112.2	94.9	104.3	98.5	88.4
Iowa	97.5	116.0	114.0	112.7	109.1	—	111.5	106.2	—	—	—	—	—
Kansas	84.7	107.3	91.8	96.8	86.6	94.2	93.7	—	—	80.8	—	—	—
Kentucky	65.0	61.8	46.6	—	—	—	—	—	—	—	—	—	—
Louisiana	67.6	64.2	61.0	77.4	75.5	63.0	62.8	60.4	—	75.5	—	—	—
White	68.1	37.9	58.2	73.2	86.7	65.5	62.5	68.0	—	84.9	—	—	—
Colored	66.8	78.5	62.5	85.0	54.8	58.6	63.4	70.2	—	58.2	—	—	—
Maryland	—	—	—	—	—	—	95.9	116.6	102.4	—	—	—	—
White	—	—	—	—	—	—	99.7	124.9	112.0	—	—	—	—
Colored	—	—	—	—	—	—	82.0	72.9	51.8	—	—	—	—
Michigan	100.3	96.0	96.9	98.3	89.0	86.7	100.5	102.8	95.1	103.9	—	—	—
Minnesota	100.9	84.8	112.0	112.2	98.6	96.5	97.3	110.3	113.5	110.4	—	—	—
Mississippi	37.5	56.8	45.4	51.6	52.6	61.1	38.8	50.0	49.6	52.3	—	—	—
White	45.5	65.6	56.5	57.0	55.2	78.4	44.1	62.0	49.9	57.0	—	—	—
Colored	30.2	48.8	35.3	48.8	50.4	45.5	34.0	39.0	49.3	48.0	—	—	—
Montana	70.2	93.5	92.8	100.2	—	—	—	—	86.4	—	—	—	—
Nebraska	—	—	—	—	—	—	—	—	—	—	—	—	—
New Jersey	100.1	116.7	115.9	105.7	110.9	117.8	123.3	104.5	123.6	101.9	100.4	100.1	97.3
New York ¹	138.1	136.0	115.3	117.9	128.4	118.1	120.1	121.6	125.9	122.0	125.1	117.0	125.5
Pennsylvania	102.1	99.8	101.4	90.6	98.0	91.0	100.4	93.4	—	99.4	95.2	90.2	94.4
Rhode Island	136.5	—	—	—	—	—	—	—	—	—	—	—	—
South Carolina	34.1	37.8	32.2	39.6	49.1	43.1	43.6	36.6	33.3	41.1	45.5	—	—
South Dakota	53.5	63.0	51.8	74.3	60.2	69.1	66.9	71.9	—	—	—	—	—
Tennessee	49.4	59.9	57.4	63.2	53.6	56.9	58.8	63.7	55.0	61.7	—	—	—
White	48.2	59.1	58.5	62.2	50.5	52.8	61.3	56.2	62.2	—	—	—	—
Colored	55.0	64.0	52.3	68.2	68.8	76.8	66.0	71.5	71.0	—	—	—	—
Virginia	55.3	63.3	63.0	56.7	59.4	56.2	68.6	59.9	53.4	—	—	—	—
White	58.1	67.9	65.1	62.0	63.8	59.4	75.8	61.3	55.5	—	—	—	—
Colored	48.0	51.3	58.5	42.7	48.0	47.9	49.6	58.2	47.9	—	—	—	—
Wisconsin	98.1	109.0	97.3	104.7	104.9	96.8	111.2	117.6	—	—	—	—	—
DIABETES (57)													
Alabama	17.0	6.3	5.2	10.9	6.4	10.0	6.4	5.0	9.5	15.2	9.7	10.8	6.9
White	18.9	8.5	4.9	12.3	5.6	12.3	4.9	5.6	11.6	15.2	10.5	12.2	—
Colored	15.8	2.9	6.6	8.2	7.9	5.4	9.2	4.0	5.5	15.0	8.2	8.1	—
California	28.9	28.9	25.6	21.4	18.1	19.0	20.4	—	—	18.3	—	—	—
Connecticut	15.8	23.8	21.5	14.1	17.2	11.9	15.1	12.2	—	16.8	—	—	—
Georgia	13.6	8.1	9.9	6.5	6.3	7.6	10.3	—	—	—	—	—	—
Hawaii Territory	13.5	3.7	10.1	13.9	16.9	17.4	19.7	3.3	17.0	10.5	7.5	—	—
Indiana	17.8	14.8	16.7	13.8	14.1	11.9	12.2	16.2	17.2	16.1	—	—	—
Iowa	29.1	18.3	16.0	18.0	21.3	—	16.5	11.6	—	—	—	—	—
Kansas	30.2	22.0	22.5	22.5	19.2	17.2	15.4	—	—	10.7	—	—	—
Kentucky	12.9	10.2	11.1	—	—	—	—	—	—	—	—	—	—
Louisiana	15.7	15.4	17.5	7.0	10.3	6.2	9.7	9.1	—	13.3	—	—	—
White	20.5	17.5	22.4	6.7	8.4	2.9	11.2	11.2	—	18.6	—	—	—
Colored	9.8	11.4	8.6	7.1	13.7	12.4	6.9	5.1	—	3.4	—	—	—
Maryland	—	—	—	—	—	—	21.9	13.1	13.6	—	—	—	—
White	—	—	—	—	—	—	20.8	13.0	11.7	—	—	—	—
Colored	—	—	—	—	—	—	22.8	13.7	23.5	—	—	—	—
Michigan	26.4	21.9	22.8	21.2	23.3	19.3	20.3	17.4	18.0	18.3	—	—	—
Minnesota	28.1	18.6	21.2	13.9	14.7	15.2	9.5	21.2	13.9	12.5	—	—	—
Mississippi	11.8	5.8	10.5	6.8	7.2	2.0	8.6	4.6	4.1	5.4	—	—	—
White	15.2	3.1	6.9	7.1	6.9	1.4	8.3	4.1	4.3	8.5	—	—	—
Colored	8.8	8.4	13.9	6.5	7.6	2.6	8.8	5.0	3.9	2.6	—	—	—
Montana	26.8	16.7	28.4	21.2	—	—	—	—	—	—	—	—	—
New Jersey	33.9	27.0	22.8	24.5	22.2	22.6	22.8	17.9	19.1	21.3	—	—	—
New York	41.6	29.8	28.1	22.9	27.1	22.3	25.4	20.1	20.9	21.5	20.1	18.7	21.0
Pennsylvania	31.7	26.2	22.5	23.4	21.8	16.2	15.2	13.9	—	20.0	15.2	16.5	16.3
Rhode Island	24.7	—	—	—	—	—	—	—	—	—	—	—	—
South Carolina	7.0	11.2	8.8	5.2	7.6	3.3	10.7	11.4	9.1	6.5	4.6	—	—
South Dakota	28.4	18.2	28.4	9.6	21.7	20.7	10.0	20.1	—	—	—	—	—
Tennessee	11.8	10.4	12.2	9.2	8.0	9.2	8.0	8.9	10.7	10.2	—	—	—
White	13.1	12.6	13.6	8.2	10.2	7.6	9.1	7.4	9.4	—	—	—	—
Colored	5.5	5.5	14.2	11.0	17.2	2.8	16.5	17.0	—	—	—	—	—
Virginia	19.7	8.6	7.8	10.9	7.8	7.1	10.1	10.1	11.3	—	—	—	—
White	22.1	6.3	7.6	13.1	5.1	6.5	9.5	11.4	12.4	—	—	—	—
Colored	13.2	14.7	8.3	5.1	14.9	8.6	11.6	6.6	8.5	—	—	—	—

¹ Exclusive of New York City.

Monthly State mortality statistics—Continued

[All rates are on an annual basis, and, with the exception of mortality from all causes, infant mortality and congenital malformations and diseases of early infancy, are per 100,000 population]

State	1929									Corresponding month for—			
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	1928	1927	1926	1925

DISEASES OF THE NERVOUS SYSTEM (70-89)

Alabama (total).....	92.4	95.8	100.7	108.3	111.2	97.9	87.0	90.1	98.8	93.2	—	—	—
White.....	80.6	86.9	95.3	97.0	99.5	79.7	69.4	78.5	81.1	72.4	—	—	—
Colored.....	114.7	112.4	110.8	129.4	133.2	132.2	120.0	129.2	132.2	132.2	—	—	—
California.....	161.8	15.8	142.4	143.4	125.0	139.9	130.8	—	—	—	129.5	—	—
Iowa.....	143.5	170.2	141.1	144.3	134.3	—	123.6	120.7	—	—	—	—	—
Kansas.....	154.6	162.0	170.0	139.2	143.7	135.9	120.6	—	—	—	132.2	—	—
Kentucky.....	122.2	112.3	98.7	—	—	—	—	—	—	—	—	—	—
Louisiana.....	115.3	105.6	89.4	91.7	91.2	101.7	70.7	85.7	—	—	103.3	—	—
White.....	99.8	94.0	68.1	80.0	64.3	85.8	69.9	69.9	—	—	88.6	—	—
Colored.....	143.9	127.1	128.5	113.3	140.5	131.0	99.3	114.8	—	—	130.2	—	—
Maryland.....	—	—	—	—	—	—	115.8	96.9	118.2	—	—	—	—
White.....	—	—	—	—	—	—	114.5	94.5	113.8	—	—	—	—
Colored.....	—	—	—	—	—	—	123.0	109.4	141.3	—	—	—	—
Michigan.....	174.1	142.5	151.8	138.6	145.2	126.1	115.2	135.9	120.1	126.4	—	—	—
Minnesota.....	109.4	95.6	112.5	90.7	100.8	82.2	91.3	77.4	78.7	82.7	—	—	—
Montana.....	—	—	—	—	—	—	—	—	77.6	—	—	—	—
Nebraska.....	122.1	133.3	—	—	—	—	—	—	—	—	—	—	—
New Jersey.....	147.6	131.0	132.2	128.3	112.5	96.5	103.5	88.7	107.6	95.8	113.3	117.4	115.9
New York ¹	104.2	175.4	170.0	150.4	160.3	119.7	125.9	118.9	126.7	136.1	137.5	134.2	163.5
Pennsylvania.....	153.4	135.5	131.4	122.4	119.6	94.0	96.0	93.6	—	—	108.1	—	—
Rhode Island.....	182.5	—	—	—	—	—	—	—	—	—	—	—	—
South Dakota.....	60.2	103.7	98.7	98.8	83.6	81.2	70.2	98.7	—	—	—	—	—
Tennessee.....	105.9	104.7	117.2	103.6	106.4	104.1	98.8	83.8	91.9	—	—	—	—
White.....	94.2	96.2	104.5	90.3	85.9	91.5	81.8	75.5	75.1	—	—	—	—
Colored.....	162.3	146.2	178.8	167.7	206.3	250.2	181.4	123.7	173.2	—	—	—	—
Virginia.....	155.9	142.8	123.9	125.7	108.4	108.7	111.6	86.0	105.4	—	—	—	—
White.....	127.0	114.8	106.8	101.2	88.4	80.5	97.3	60.0	84.2	—	—	—	—
Colored.....	231.6	216.1	168.7	189.9	160.4	158.0	148.9	153.8	160.6	—	—	—	—

CEREBRAL HEMORRHAGE, APoplexy (74)

Alabama (total).....	50.9	55.1	53.9	63.7	68.4	56.6	56.3	55.8	69.0	50.4	48.5	43.5	46.4
White.....	45.6	32.8	57.5	54.3	58.9	44.9	42.8	46.3	56.5	42.7	42.9	40.5	—
Colored.....	68.6	65.7	55.4	79.0	84.4	76.3	81.8	73.8	92.7	80.4	58.5	48.9	—
California.....	113.5	103.6	97.7	100.9	91.7	95.3	93.8	—	—	89.7	—	—	—
Georgia.....	64.7	76.1	65.8	58.1	67.6	77.5	60.5	59.6	—	—	—	—	—
Hawaii Territory.....	60.7	71.0	40.5	48.8	50.6	45.3	72.4	55.9	57.8	13.9	67.4	—	—
Indiana.....	138.7	126.0	120.1	104.2	107.1	106.5	104.5	85.6	91.9	97.3	96.6	79.8	76.7
Iowa.....	102.8	123.6	92.5	108.7	98.4	—	88.7	89.7	—	—	—	—	—
Kansas.....	127.0	132.1	133.5	110.8	112.9	106.8	93.0	—	—	98.8	—	—	—
Kentucky.....	70.1	66.9	58.1	—	—	—	—	—	—	—	—	—	—
Louisiana.....	77.9	64.8	54.3	61.2	62.2	61.8	30.1	51.3	—	—	61.6	—	—
White.....	50.7	66.8	41.0	51.1	44.8	49.1	44.8	39.2	—	—	53.1	—	—
Colored.....	111.3	79.6	73.8	79.6	94.2	84.9	60.0	73.7	—	—	77.1	—	—
Maryland.....	—	—	—	—	—	—	88.9	72.9	84.3	—	—	—	—
White.....	—	—	—	—	—	—	88.5	73.7	78.0	—	—	—	—
Colored.....	—	—	—	—	—	—	61.1	68.3	117.7	—	—	—	—
Michigan.....	122.1	99.1	112.1	100.2	102.3	86.6	80.0	82.0	85.3	87.5	—	—	—
Minnesota.....	81.3	69.6	84.4	71.5	77.9	63.0	64.0	58.8	56.8	59.0	—	—	—
Mississippi.....	80.9	78.6	69.7	64.5	77.6	63.2	71.0	64.4	63.9	67.9	—	—	—
White.....	78.6	79.4	77.2	59.8	66.2	58.4	55.2	52.4	62.7	65.5	—	—	—
Colored.....	83.1	78.1	63.0	60.0	88.2	67.0	85.6	75.4	64.9	70.1	—	—	—
Montana.....	—	—	—	—	—	—	—	—	55.4	—	—	—	—
Nebraska.....	101.2	95.4	—	—	—	—	—	—	—	—	—	—	—
New Jersey.....	107.5	98.9	97.4	90.1	85.1	67.2	75.8	67.8	70.7	72.0	—	—	—
New York ¹	158.2	138.5	126.8	115.6	120.8	98.1	95.3	84.2	96.4	104.2	102.7	103.5	122.0
Pennsylvania.....	112.6	95.1	92.7	88.4	87.6	71.7	70.0	64.5	—	—	76.8	—	—
Rhode Island.....	159.5	—	—	—	—	—	—	—	—	—	—	—	—
South Dakota.....	43.5	59.3	60.2	55.3	53.5	50.1	45.2	51.0	—	—	—	—	—
Tennessee.....	58.4	60.4	59.8	56.9	69.6	59.3	53.2	52.7	55.9	—	—	—	—
White.....	49.4	55.9	55.1	45.8	53.4	51.6	47.1	47.1	48.7	—	—	—	—
Colored.....	101.8	82.2	82.5	105.2	148.0	96.7	82.5	79.7	90.9	—	—	—	—
Virginia.....	103.8	102.3	90.5	90.3	71.3	78.4	84.6	57.6	70.4	—	—	—	—
White.....	93.5	82.6	72.7	73.1	57.5	63.4	74.6	41.1	51.6	—	—	—	—
Colored.....	148.9	153.8	137.3	135.0	107.5	117.9	110.8	100.9	119.6	—	—	—	—

¹ Exclusive of New York City.

December 20, 1929

Monthly State mortality statistics—Continued

[All rates are on an annual basis, and, with the exception of mortality from all causes, infant mortality and congenital malformations and diseases of early infancy, are per 100,000 population]

State	1929										Corresponding month for—			
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	1928	1927	1926	1925	
DISEASES OF THE CIRCULATORY SYSTEM (57-96)														
Alabama (total).....	153.8	142.9	132.7	141.4	149.2	134.3	132.3	138.7	130.0	133.8	.....	.....	.....	.....
White.....	136.0	120.3	110.7	119.5	113.5	107.9	99.7	107.2	97.8	105.5	.....	.....	.....	.....
Colored.....	187.2	185.4	174.1	182.6	216.2	183.9	212.3	197.8	190.8	185.3	.....	.....	.....	.....
California.....	427.7	383.4	372.4	360.2	335.7	326.1	294.1	269.7	240.1	266.2	.....	.....	.....	.....
Iowa.....	313.8	287.2	268.2	282.6	271.6	222.1	190.6	160.4	155.9	155.9	.....	.....	.....	.....
Kansas.....	232.3	216.7	198.3	198.9	198.9	179.0	160.4	155.9	155.9	155.9	.....	.....	.....	.....
Kentucky.....	232.4	198.5	191.9	209.6	196.0	195.9	196.8	178.1	191.4	191.4	.....	.....	.....	.....
Louisiana.....	307.9	242.0	213.7	209.6	196.0	195.9	196.8	178.1	191.4	191.4	.....	.....	.....	.....
White.....	270.4	194.7	179.0	164.8	148.3	154.2	149.2	140.8	145.5	145.5	.....	.....	.....	.....
Colored.....	376.8	330.0	277.5	292.0	280.9	272.6	284.3	246.7	275.8	275.8	.....	.....	.....	.....
Maryland.....	232.4	216.0	219.1	192.7	209.4	239.7	140.4	219.8	232.5	232.5	.....	.....	.....	.....
White.....	232.4	216.0	219.1	192.7	209.4	239.7	140.4	219.8	232.5	232.5	.....	.....	.....	.....
Colored.....	232.4	216.0	219.1	192.7	209.4	239.7	140.4	219.8	232.5	232.5	.....	.....	.....	.....
Michigan.....	347.3	273.2	276.7	266.3	278.5	245.4	215.2	206.5	219.7	222.1	.....	.....	.....	.....
Minnesota.....	253.9	185.6	191.6	178.8	189.5	176.1	171.3	153.1	161.4	156.0	.....	.....	.....	.....
Montana.....	217.4	216.6	219.1	192.7	209.4	239.7	140.4	219.8	232.5	232.5	.....	.....	.....	.....
Nebraska.....	391.3	344.1	305.4	297.4	258.5	255.1	233.9	192.3	225.6	215.9	198.0	196.4	186.6	186.6
New Jersey.....	545.9	441.9	382.3	369.9	341.2	297.2	301.3	305.2	304.7	311.4	292.2	292.1	303.8	303.8
Pennsylvania.....	369.3	299.7	278.4	259.7	245.0	217.5	200.7	190.9	190.9	196.9	.....	.....	.....	.....
Rhode Island.....	347.3	292.3	291.2	269.6	266.9	312.0	272.9	296.9	277.4	263.3	273.0	.....	.....	.....
South Carolina.....	262.1	292.3	291.2	269.6	266.9	312.0	272.9	296.9	277.4	263.3	273.0	.....	.....	.....
South Dakota.....	162.2	150.0	155.5	134.8	160.6	115.8	95.3	148.9	160.2	161.8	118.2	.....	.....	.....
Tennessee.....	162.8	159.4	160.0	136.6	149.2	149.8	142.6	120.0	134.2	134.2	.....	.....	.....	.....
White.....	147.0	134.5	130.0	116.2	132.3	119.1	113.0	97.4	111.5	111.5	.....	.....	.....	.....
Colored.....	139.3	290.2	305.4	235.9	231.1	298.5	285.8	219.9	244.2	244.2	.....	.....	.....	.....
Virginia.....	242.8	217.7	218.6	164.4	185.2	174.3	149.1	140.4	145.1	145.1	.....	.....	.....	.....
White.....	223.7	191.5	174.4	150.9	159.9	145.0	130.8	105.5	121.5	121.5	.....	.....	.....	.....
Colored.....	293.7	278.3	334.1	200.0	251.4	251.2	196.8	231.5	206.8	206.8	.....	.....	.....	.....
DISEASES OF THE HEART (87-90)														
Alabama (total).....	138.3	125.6	117.9	132.6	140.4	125.0	124.0	125.4	122.0	122.6	111.0	95.8	98.1	.....
White.....	129.7	108.6	103.0	110.8	105.1	96.9	86.9	93.9	90.5	99.2	82.8	83.2	.....	.....
Colored.....	175.4	175.2	163.5	171.7	205.7	177.1	193.8	184.6	181.3	166.2	161.8	118.2	.....	.....
California.....	372.4	338.2	329.2	317.0	299.0	286.3	258.7	286.3	225.9	.....	.....	.....	.....	.....
Connecticut.....	250.1	219.2	212.4	194.3	190.9	155.0	170.0	154.3	164.9	164.9	138.8	137.5	137.0	137.0
Georgia.....	114.0	96.9	95.9	107.5	105.9	141.7	117.7	102.9	102.9	102.9	115.0	112.3	.....	.....
Hawaiian Territory.....	114.7	141.9	138.5	132.5	141.7	118.5	92.1	102.0	110.1	115.0	112.3	.....	.....	.....
Indiana.....	230.6	198.7	242.3	199.2	228.0	222.2	187.6	167.9	186.2	182.3	146.8	142.2	127.0	127.0
Iowa.....	281.3	254.0	233.7	251.1	239.6	197.4	167.3	187.4	185.4	185.4	.....	.....	.....	.....
Kansas.....	207.3	185.4	173.9	173.1	175.2	153.2	139.9	139.9	139.9	139.9	135.4	.....	.....	.....
Kentucky.....	194.0	158.3	160.0	160.0	160.0	160.0	184.7	174.8	174.8	174.8	174.8	174.8	174.8	174.8
Louisiana.....	290.4	221.3	193.8	192.8	183.6	177.8	182.9	167.3	178.7	178.7	.....	.....	.....	.....
White.....	252.7	178.6	100.4	150.3	137.1	137.8	138.9	131.5	135.2	135.2	.....	.....	.....	.....
Colored.....	359.7	290.6	255.2	270.8	268.9	251.3	263.8	233.0	258.6	258.6	.....	.....	.....	.....
Maryland.....	204.8	196.3	194.0	178.7	204.0	199.6	183.7	183.7	183.7	183.7	183.7	183.7	183.7	183.7
White.....	194.8	196.3	194.0	178.7	204.0	199.6	183.7	183.7	183.7	183.7	183.7	183.7	183.7	183.7
Colored.....	232.4	278.0	230.7	232.4	278.0	230.7	230.7	230.7	230.7	230.7	230.7	230.7	230.7	230.7
Michigan.....	347.3	235.7	240.8	238.5	240.0	218.1	255.2	177.7	186.6	187.9	.....	.....	.....	.....
Minnesota.....	208.9	150.5	147.5	100.1	152.7	136.8	140.6	121.5	127.8	127.4	.....	.....	.....	.....
Mississippi.....	103.9	112.8	90.3	106.7	111.8	108.0	127.0	111.8	87.6	99.9	.....	.....	.....	.....
White.....	104.8	114.5	102.0	95.5	95.1	84.1	91.0	104.8	68.8	88.3	.....	.....	.....	.....
Colored.....	107.0	111.5	97.0	117.1	127.2	130.1	159.9	118.1	103.9	110.4	.....	.....	.....	.....
Montana.....	126.0	126.0	126.0	126.0	126.0	126.0	126.0	126.0	126.0	126.0	126.0	126.0	126.0	126.0
Nebraska.....	194.8	196.3	194.0	178.7	204.0	199.6	183.7	183.7	183.7	183.7	183.7	183.7	183.7	183.7
New Jersey.....	361.3	324.4	277.6	276.0	226.7	214.8	273.5	207.3	193.3	193.3	.....	.....	.....	.....
New York ¹	453.7	391.7	338.9	322.0	292.6	257.9	262.4	261.6	258.6	237.2	248.9	231.2	255.8	255.8
Pennsylvania.....	336.9	273.9	248.8	232.3	221.3	196.7	185.9	172.8	172.8	176.6	175.0	158.0	144.0	144.0
Rhode Island.....	304.2	232.4	232.4	232.4	232.4	232.4	232.4	232.4	232.4	232.4	232.4	232.4	232.4	232.4
South Dakota.....	153.9	129.6	138.8	115.8	142.2	162.0	76.9	117.1	117.1	117.1	117.1	117.1	117.1	117.1
Tennessee.....	149.2	148.0	150.1	130.7	135.7	135.7	128.0	106.4	122.5	118.7	118.7	118.7	118.7	118.7
White.....	133.4	125.1	121.5	92.7	122.6	108.5	97.7	83.5	102.1	102.1	102.1	102.1	102.1	102.1
Colored.....	225.6	258.9	268.9	201.8	211.8	207.2	274.8	217.1	221.5	221.5	221.5	221.5	221.5	221.5
Virginia.....	220.4	193.4	202.6	149.3	171.0	156.4	129.5	121.6	129.0	129.0	129.0	129.0	129.0	129.0
White.....	202.9	171.4	160.5	134.5	145.4	129.3	121.3	89.1	107.8	107.8	107.8	107.8	107.8	107.8
Colored.....	266.3	250.9	312.6	188.0	238.2	227.6	186.9	206.7	184.6	184.6	184.6	184.6	184.6	184.6

¹ Exclusive of New York City.

Monthly State mortality statistics—Continued

[All rates are on an annual basis, and, with the exception of mortality from all causes, infant mortality and congenital malformations and diseases of early infancy, are per 100,000 population]

State	1929									Corresponding month for—			
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	1928	1927	1926	1925
DISEASES OF THE RESPIRATORY SYSTEM (97-167)													
Alabama	287.8	123.1	125.4	102.6	84.7	61.0	37.1	40.7	42.1	53.0	—	—	—
White	236.0	100.9	114.9	84.7	63.1	48.5	24.5	34.3	39.8	37.7	—	—	—
Colored	383.0	165.0	145.1	136.2	125.3	84.5	60.7	52.7	46.3	81.7	—	—	—
California	143.4	152.2	167.2	139.1	98.5	92.1	64.4	—	—	67.7	—	—	—
Iowa	174.1	112.7	91.2	82.2	71.3	—	43.2	35.4	—	—	—	—	—
Kansas	105.2	135.0	141.2	86.2	50.0	33.8	20.5	—	—	28.2	—	—	—
Kentucky	311.8	197.6	134.2	—	—	—	—	—	—	—	—	—	—
Louisiana	232.5	126.3	129.2	80.6	65.2	61.8	51.3	55.2	—	62.8	—	—	—
White	185.6	87.8	97.9	51.1	42.0	49.1	28.9	39.2	—	44.8	—	—	—
Colored	318.6	197.2	186.7	134.5	107.9	84.9	92.5	87.4	—	95.9	—	—	—
Maryland	—	—	—	—	—	—	56.1	53.2	61.0	—	—	—	—
White	—	—	—	—	—	—	34.7	37.3	48.4	—	—	—	—
Colored	—	—	—	—	—	—	168.6	136.7	127.1	—	—	—	—
Michigan	333.9	155.5	147.0	130.1	121.8	87.5	42.6	45.4	51.9	49.3	—	—	—
Minnesota	163.9	74.8	83.1	74.2	71.8	49.2	35.0	32.9	43.4	39.8	—	—	—
Montana	—	—	—	—	—	—	—	—	24.4	—	—	—	—
Nebraska	138.0	131.5	107.9	75.2	—	—	—	—	—	—	—	—	—
New Jersey	357.5	203.0	174.1	116.9	101.4	62.7	50.5	45.3	49.4	64.0	—	—	—
New York ¹	332.7	185.4	152.6	134.2	109.2	73.6	46.7	48.2	51.1	65.2	51.6	58.4	61.5
Pennsylvania	316.7	184.2	164.4	117.6	90.1	67.1	47.7	47.8	—	51.9	—	—	—
Rhode Island	335.6	—	—	—	—	—	—	—	—	—	—	—	—
South Dakota	162.2	98.1	92.0	81.2	75.3	44.9	46.8	55.2	—	—	—	—	—
Tennessee	234.4	167.3	150.7	97.7	74.8	50.1	44.7	50.4	66.6	—	—	—	—
White	206.6	133.9	127.7	83.3	50.0	37.5	36.9	41.5	54.6	—	—	—	—
Colored	368.6	271.1	267.1	167.7	151.3	110.9	82.5	93.4	125.0	—	—	—	—
Virginia	145.0	132.6	119.8	79.9	71.8	41.6	35.2	38.4	41.1	—	—	—	—
White	111.9	98.7	97.3	61.4	53.7	30.7	31.0	26.5	26.8	—	—	—	—
Colored	281.6	221.6	173.6	128.2	119.1	70.1	44.3	68.5	78.6	—	—	—	—
PNEUMONIA, ALL FORMS (100, 101)													
Alabama (total)	261.9	111.6	110.5	97.9	79.8	53.4	32.5	34.8	31.7	44.6	43.1	43.5	35.5
White	227.1	93.9	107.2	80.4	60.3	41.3	21.7	28.0	32.6	29.7	35.4	42.0	—
Colored	366.5	160.6	133.2	129.4	116.0	76.3	52.7	47.5	30.0	72.7	57.1	45.2	—
California	123.5	135.6	152.5	119.4	83.5	76.9	54.8	—	—	54.8	—	—	—
Connecticut	254.7	232.0	142.8	104.5	86.8	54.1	45.8	35.2	—	34.3	44.5	27.2	37.7
Georgia	185.6	97.3	77.6	70.3	46.7	52.4	34.2	24.3	—	—	—	—	—
Hawaii Territory	145.1	234.0	158.7	217.5	202.4	139.4	121.7	157.9	105.5	118.5	131.0	—	—
Illinois	204.6	74.2	120.0	92.2	86.6	57.6	34.2	30.7	36.2	41.5	33.2	33.9	32.2
Indiana	270.3	169.5	137.9	83.5	85.6	50.2	24.8	38.2	55.2	44.1	42.9	35.4	30.7
Iowa	155.2	95.1	77.6	71.7	40.2	—	—	36.4	26.7	—	—	—	—
Kansas	93.0	130.3	125.8	76.9	41.1	23.9	13.5	—	—	21.8	—	—	—
Kentucky	285.9	180.3	116.7	—	—	—	—	—	—	—	—	—	—
Louisiana	215.0	111.6	118.3	68.0	52.5	58.0	43.5	45.9	—	52.5	—	—	—
White	108.8	80.5	88.6	41.4	31.7	45.3	24.2	29.8	—	36.4	—	—	—
Colored	299.7	168.8	173.0	110.8	90.8	81.4	78.8	75.4	—	82.2	—	—	—
Maryland	—	—	—	—	—	—	46.6	45.2	52.0	—	—	—	—
White	—	—	—	—	—	—	27.8	31.2	41.2	—	—	—	—
Colored	—	—	—	—	—	—	145.8	118.5	108.3	—	—	—	—
Michigan	224.7	136.5	125.2	114.2	105.7	73.4	33.6	33.9	41.3	27.6	—	—	—
Minnesota	156.2	71.4	72.2	68.4	65.3	39.8	28.1	29.4	36.2	32.6	—	—	—
Mississippi	191.4	107.0	110.4	63.2	38.8	26.5	15.1	19.7	38.7	29.9	—	—	—
White	171.0	103.8	106.2	48.4	41.4	17.1	13.8	23.4	44.2	22.8	—	—	—
Colored	201.3	110.1	114.6	76.8	36.5	35.0	16.4	16.3	33.8	36.4	—	—	—
Montana	—	—	—	—	—	—	—	—	17.7	—	—	—	—
Nebraska	119.0	115.7	96.2	65.7	—	—	—	—	—	—	—	—	—
New Jersey	326.9	187.3	153.8	99.4	91.2	51.6	44.1	37.0	39.8	54.1	28.9	24.5	25.3
New York ¹	297.6	165.8	135.6	116.7	92.4	62.8	37.6	39.3	42.5	53.4	41.0	46.9	49.6
North Carolina	185.2	177.5	130.2	113.5	81.0	—	—	—	—	—	—	—	—
Pennsylvania	285.1	162.0	142.8	97.7	85.0	52.7	38.9	37.5	—	40.4	42.6	42.7	53.5
Rhode Island	317.4	—	—	—	—	—	—	—	—	—	—	—	—
South Carolina	140.2	123.2	130.1	90.7	77.1	62.0	37.9	44.8	58.1	56.8	55.7	—	—
South Dakota	142.2	77.8	85.3	62.2	68.6	34.6	36.8	46.8	—	—	—	—	—
Tennessee	215.1	140.4	140.7	86.6	66.4	39.4	33.9	41.4	55.9	40.4	49.5	—	—
White	186.2	125.1	114.7	73.9	53.4	31.7	28.4	34.1	46.9	—	—	—	—
Colored	354.9	249.8	266.8	147.8	129.3	76.8	60.5	79.7	99.4	—	—	—	—
Virginia	131.2	120.5	104.7	68.0	60.4	36.9	26.5	28.8	31.7	—	—	—	—
White	101.1	90.3	87.2	50.9	44.9	28.1	24.0	20.2	20.2	—	—	—	—
Colored	210.1	199.6	150.5	112.8	100.9	59.8	53.1	51.3	61.5	—	—	—	—
Wisconsin	161.9	120.5	88.9	84.5	78.9	49.0	30.0	29.9	—	—	—	—	—

¹ Exclusive of New York City.

Monthly State mortality statistics—Continued

[All rates are on an annual basis, and, with the exception of mortality from all causes, infant mortality and congenital malformations and diseases of early infancy, are per 100,000 population]

State	1920									Corresponding month for—			
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	1928	1927	1926	1925
DISEASES OF THE DIGESTIVE SYSTEM (108-127)													
Alabama (total).....	54.5	51.2	155.6	61.9	106.2	147.5	139.1	107.5	100.7	111.6	109.4	108.4	107.4
White.....	47.7	46.6	141.6	46.3	101.6	143.4	136.0	100.2	92.0	102.3	100.4	99.4	98.4
Colored.....	67.2	59.9	182.0	91.3	104.7	155.3	145.0	121.3	117.2	115.8	114.0	113.0	112.0
California.....	86.3	85.6	91.2	94.5	92.0	103.9	112.9	—	—	112.8	111.8	110.8	109.8
Hawaii Territory.....	222.7	186.8	200.2	198.7	182.2	174.3	180.9	157.9	132.7	167.3	134.8	133.8	132.8
Iowa.....	52.9	58.0	73.7	66.6	62.1	—	68.9	62.1	—	55.6	54.6	53.6	52.6
Kansas.....	67.4	63.9	73.1	84.2	62.9	76.3	85.3	—	—	95.6	94.6	93.6	92.6
Kentucky.....	53.0	52.1	55.3	—	—	—	—	—	—	112.8	111.8	110.8	109.8
Louisiana.....	70.0	78.2	80.9	78.6	112.3	128.5	122.6	105.7	—	93.2	92.2	91.2	90.2
White.....	68.1	76.4	79.3	56.9	87.7	106.3	86.7	—	—	94.3	93.3	92.3	91.3
Colored.....	73.6	81.5	83.9	118.6	157.6	205.3	152.4	140.5	—	147.3	146.3	145.3	144.3
Maryland.....	—	—	—	—	—	—	96.2	142.8	115.2	—	—	—	—
White.....	—	—	—	—	—	—	80.7	124.9	99.5	—	—	—	—
Colored.....	—	—	—	—	—	—	173.1	236.9	193.1	—	—	—	—
Michigan.....	84.4	92.2	82.8	80.6	90.5	89.0	78.2	95.7	128.3	100.5	99.5	98.5	97.5
Minnesota.....	56.7	59.3	62.3	63.5	67.9	59.0	64.5	64.0	63.0	58.0	57.0	56.0	55.0
Montana.....	—	—	—	—	—	—	—	—	88.6	—	—	—	—
Nebraska.....	72.8	81.5	73.6	73.4	—	—	—	—	—	—	—	—	—
New Jersey.....	72.7	61.1	86.3	76.1	75.8	73.6	74.6	71.8	92.7	90.7	81.3	64.8	65.6
New York ¹	70.9	71.9	74.2	69.9	71.5	62.0	64.7	79.0	93.6	84.6	82.8	98.1	160.5
Pennsylvania.....	73.3	74.8	73.6	75.0	61.4	62.9	71.5	87.8	—	94.7	—	—	—
Rhode Island.....	88.5	—	—	—	—	—	—	—	—	—	—	—	—
South Dakota.....	46.8	72.2	68.6	58.8	78.6	44.9	58.5	80.3	—	—	—	—	—
Tennessee.....	44.2	60.4	66.8	70.1	71.1	110.9	171.8	133.2	98.2	—	—	—	—
White.....	36.3	47.1	60.7	55.1	63.0	142.1	160.7	127.2	90.9	—	—	—	—
Colored.....	79.8	124.9	96.3	142.1	110.0	104.4	225.4	162.2	133.5	—	—	—	—
Virginia.....	35.7	48.1	55.8	52.0	60.4	102.5	104.3	99.7	66.9	—	—	—	—
White.....	30.3	38.5	46.1	47.7	36.7	73.8	87.9	87.8	59.4	—	—	—	—
Colored.....	49.6	73.3	81.0	63.2	122.4	177.7	147.2	130.7	97.4	—	—	—	—
DIARRHEA AND ENTERITIS UNDER 2 YEARS (113)													
Alabama (total).....	3.9	5.8	7.0	12.4	40.8	64.8	62.7	33.4	28.4	59.3	27.1	55.7	—
White.....	2.8	3.9	10.5	5.8	38.5	65.9	67.3	36.8	26.8	62.3	29.4	56.5	—
Colored.....	6.6	10.2	1.3	24.5	44.8	62.7	54.1	58.2	31.3	53.1	23.1	54.3	—
California.....	9.6	9.2	8.5	11.2	17.6	23.0	28.4	—	—	21.2	—	—	—
Connecticut.....	5.0	15.9	5.7	5.2	11.5	8.2	5.0	17.9	—	13.9	13.4	41.5	38.5
Georgia.....	2.2	6.9	7.4	12.2	22.8	35.3	29.8	27.6	—	—	—	—	—
Hawaii Territory.....	—	—	—	—	—	—	—	98.7	97.6	63.6	—	—	—
Indiana.....	8.2	6.6	11.9	5.7	7.4	10.3	25.6	47.1	43.7	47.1	45.2	83.0	66.4
Iowa.....	5.8	1.1	2.9	4.5	2.9	—	—	3.9	5.8	—	—	—	—
Kansas.....	7.7	5.7	12.2	7.3	4.5	6.0	12.2	—	—	22.5	—	—	—
Kentucky.....	8.3	8.2	8.3	—	—	—	—	—	—	—	—	—	—
Louisiana.....	13.9	19.4	26.0	22.4	34.4	49.3	34.4	31.4	—	30.8	—	—	—
White.....	12.1	17.5	23.3	15.4	21.4	27.0	25.9	22.4	—	21.4	—	—	—
Colored.....	17.1	22.7	30.8	35.4	58.2	90.3	44.5	48.0	—	48.0	—	—	—
Michigan.....	11.8	19.2	9.0	11.1	12.6	11.4	10.0	23.1	44.3	38.7	—	—	—
Minnesota.....	2.6	4.3	4.3	3.6	3.9	3.1	2.2	6.5	3.6	6.7	—	—	—
Mississippi.....	2.6	4.4	7.2	12.2	32.9	55.0	50.0	25.0	18.3	24.5	—	—	—
White.....	2.8	3.1	4.1	14.3	28.9	59.8	49.6	15.2	18.5	27.1	—	—	—
Colored.....	2.5	5.6	10.1	10.4	36.6	105.4	50.4	33.9	18.2	22.1	—	—	—
Montana.....	—	—	—	—	—	—	—	—	19.9	—	—	—	—
Nebraska.....	5.0	9.3	5.9	5.2	—	—	—	—	—	—	—	—	—
New Jersey.....	11.1	7.2	10.2	10.5	7.7	6.4	10.2	17.3	29.6	24.5	25.0	—	—
New York ¹	9.9	9.6	9.5	7.9	8.7	7.2	6.0	13.9	23.9	20.9	21.3	36.3	78.0
North Carolina.....	10.4	10.2	4.0	11.2	38.5	—	—	—	—	—	—	—	—
Pennsylvania.....	15.1	14.0	15.2	12.3	10.2	8.6	15.6	28.4	—	32.0	30.4	52.7	61.2
South Dakota.....	1.7	5.6	6.7	6.9	3.8	1.7	1.7	10.0	—	—	—	—	—
Tennessee.....	3.2	3.6	8.9	6.8	10.4	38.9	77.7	53.6	36.5	55.9	27.4	—	—
White.....	2.3	3.8	8.0	5.3	7.4	38.7	74.4	55.6	38.7	55.6	27.4	—	—
Colored.....	8.3	3.1	13.8	14.2	24.8	39.8	93.5	44.0	25.6	—	—	—	—
Virginia.....	3.7	5.6	5.5	5.3	12.3	37.3	50.3	37.0	27.9	42.1	—	—	—
White.....	3.2	4.2	4.4	3.3	6.3	18.9	41.7	32.9	26.8	37.9	—	—	—
Colored.....	5.0	9.2	8.3	3.4	28.1	85.3	72.8	48.0	30.8	52.9	—	—	—
Wisconsin.....	8.8	15.9	14.4	11.9	14.8	9.3	6.8	8.0	—	—	—	—	—

¹ Exclusive of New York City.

Monthly State mortality statistics—Continued

All rates are on an annual basis, and, with the exception of mortality from all causes, infant mortality and congenital malformations and diseases of early infancy, are per 100,000 population]

State	1929									Corresponding month for			
	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	1928	1927	1926	1925
NEPHRITIS (128, 129)													
Alabama (total).....	85.1	85.6	95.2	91.7	104.3	96.9	95.2	92.9	78.1				
White.....	72.2	76.0	78.5	79.7	80.6	71.0	84.1	79.2	60.1				
Colored.....	109.4	103.6	126.6	114.4	149.0	145.8	116.0	118.7	106.3				
California.....	119.4	128.5	106.5	128.2	106.7	108.7	98.5			96.7			
Connecticut.....	81.1	100.9	67.4	68.2	116.2	54.9	46.6	35.2		57.6			
Georgia.....	134.5	134.7	105.1	117.8	111.1	123.1	115.8	111.8					
Indiana.....	81.6	85.4	100.1	95.0	92.7	74.3	73.8	63.8	70.9	84.3	67.6	83.7	67.6
Iowa.....	53.8	56.9	60.1	61.6	56.7			42.2	36.9				
Kansas.....	105.9	104.4	98.8	94.8	93.0	92.8	77.0			75.1			
Kentucky.....	104.2	84.8	68.7										
Louisiana.....	116.5	131.7	111.1	112.3	115.9	120.4	99.0	108.7		102.6			
White.....	100.1	115.6	87.6	84.8	79.3	90.6	82.1	88.6		81.1			
Colored.....	130.2	161.2	154.1	162.8	183.3	175.2	130.2	145.6		142.2			
Maryland.....										123.9	133.3	124.2	
White.....										117.1	127.5	110.2	
Colored.....										191.4	154.9	197.8	
Michigan.....	82.1	75.4	74.9	73.4	67.4	72.6	59.8	62.6	62.8	62.5			
Minnesota.....	71.8	56.2	56.7	54.1	49.7	48.7	42.4	39.4	40.2	50.5			
Mississippi.....	102.6	115.0	107.8	112.1	70.3	117.5	106.6	92.0	99.9	81.5			
White.....	89.6	97.7	86.9	89.6	101.2	74.1	84.1	74.5	68.4	86.9			
Colored.....	114.6	131.1	127.2	128.5	132.7	147.0	127.2	108.1	128.5	76.6			
Montana.....										68.7			
Nebraska.....	60.2	64.8	52.7	57.0									
New Jersey.....	137.7	125.5	110.6	104.4	102.6	101.3	85.7	78.0	80.8	90.4	86.3	84.3	69.6
New York ¹	137.5	126.1	122.2	124.1	111.0	103.4	91.0	99.3	94.7	92.6	100.3	107.1	103.3
Pennsylvania.....	143.3	112.5	108.8	102.3	103.8	88.6	83.9	80.7		94.2	82.7	79.6	87.6
Rhode Island.....	141.4												
South Dakota.....	36.8	27.8	36.8	31.1	35.1	35.3	38.5	51.9					
Tennessee.....	77.2	65.1	78.0	77.3	69.2	71.0	73.9	69.6	76.4				
White.....	120.6	57.8	64.7	67.5	62.5	59.8	57.9	60.2	64.5				
Colored.....	112.8	100.5	145.8	125.1	101.8	128.1	151.2	115.4	133.5				
Virginia.....	104.7	107.8	106.3	89.8	74.1	91.7	97.4	88.2	95.4				
White.....	92.3	99.4	99.9	79.7	67.0	81.0	88.5	72.7	78.4				
Colored.....	137.3	130.0	134.0	116.2	92.6	119.6	120.8	129.0	140.1				

PUERPERAL STATE (143-150)

Alabama (total).....	15.6	17.4	13.9	23.8	23.9	29.0	12.4	25.2	23.2	18.0	16.5	22.5	20.7
White.....	14.7	14.0	13.3	17.4	19.6	20.3	8.4	20.3	13.8	14.5	13.6	22.1	
Colored.....	19.8	26.3	17.1	35.4	31.6	45.0	19.8	34.3	40.9	24.5	21.8	23.1	
California.....	10.1	6.0	9.3	12.8	10.3	7.7	11.4			9.8			
Connecticut (143-149).....	6.5	16.7	10.0	4.4	5.0	12.6	8.6	8.6		8.0	9.6	9.8	9.2
Georgia.....	18.4	19.1	14.7	14.7	13.3	13.2	18.0						
Indiana.....	16.7	9.9	15.9	10.7	12.2	15.3	10.2	11.9	10.7	15.3	11.6	11.3	10.6
Iowa.....	14.1	9.7	13.1	10.5	8.2		8.2	8.2					
Kansas.....	10.3	10.7	14.8	10.6	11.5	16.6	12.2			13.5			
Kentucky.....	15.2	11.7	12.9										
Louisiana.....	24.2	11.4	22.9	25.6	21.1	16.8	21.7	25.4		10.9			
White.....	21.5	10.3	15.8	25.1	16.8	10.6	12.1	17.7		12.1			
Colored.....	29.1	13.3	36.0	26.5	29.1	28.3	39.4	39.4		34.2			
Maryland.....							11.7	14.6	7.5				
White.....							8.7	13.0	6.3				
Colored.....							27.3	22.8	14.1				
Michigan.....	11.8	14.2	17.2	17.2	11.0	13.5	16.9	10.0	10.6	7.7			
Minnesota.....	9.1	8.7	9.1	8.5	5.2	7.2	4.8	5.2	4.5	4.0			
Montana.....									8.9				
Nebraska.....	15.0	13.0	13.4	6.9									
New Jersey.....	10.2	8.9	10.2	10.5	10.2	8.9	9.2	10.8	8.9	10.2			
New York ¹	11.0	11.4	12.4	4.1	11.2	8.5	8.3	6.8	8.8	8.9	11.7	9.0	12.5
Rhode Island.....	4.9												
South Dakota.....	13.4	14.8	13.4	15.6	6.7	6.9	13.4	11.7					
Tennessee.....	18.4	12.5	17.4	20.9	8.3	17.4	15.5	13.1					
White.....	17.0	8.2	15.3	20.0	13.0	8.8	15.3	13.1	13.5				
Colored.....	24.8	23.5	27.5	25.5	27.5	5.7	27.5	27.5	11.4				
Virginia.....	15.1	16.2	13.3	15.1	17.8	13.7	13.3	13.3	9.0				
White.....	16.7	10.5	10.1	10.5	10.1	11.1	10.7	9.5	5.9				
Colored.....	26.5	31.1	21.5	27.3	38.0	20.5	19.9	23.2	17.1				

¹ Exclusive of New York City.

DEATH RATES IN A GROUP OF INSURED PERSONS**RATES FOR PRINCIPAL CAUSES OF DEATH FOR OCTOBER, 1929**

The accompanying table, taken from the Statistical Bulletin for November, 1929, issued by the Metropolitan Life Insurance Co., presents the mortality record of the industrial insurance department of the company for October and the cumulative death rates for the period January to October, inclusive, for the years 1929 and 1928, for the principal causes of death. The rates are based on a strength of approximately 19,000,000 insured persons in the United States and Canada.

The Bulletin states:

Satisfactory health conditions continued to prevail during October among the American and Canadian industrial populations. At the end of the month the cumulative death rate for the year was 9.3 per 1,000, or substantially the same as for the same period of last year (9.2). Health conditions have been gradually readjusting themselves since the influenza outbreak of last winter; and there is now every prospect that the year will register a death rate as low, or even a little lower, than that for 1928. That a very considerable improvement was necessary to bring this about is evidenced by the fact that at the end of the first quarter the mortality rate was 17.6 per cent in excess of that for the corresponding period of 1928. Better conditions have been maintained for every month since February of this year, with a single exception.

The year-to-date death rate at the end of October among policyholders in the section west of the Rocky Mountains was 6.8 per 1,000, as compared with 6.7 for the same period of 1928. For the rest of the United States the corresponding figures were 9.5 and 9.4, while in Canada they were 9.2 and 9.

Comparison with October, 1928, shows lower death rates this year for typhoid fever, scarlet fever, diphtheria, tuberculosis, cancer, organic heart disease, pneumonia, and other respiratory conditions, diarrheal complaints, and puerperal diseases. There was no significant increase for any disease. Suicides and accidents increased slightly, homicides appreciably, and automobile accidents sharply.

Three diseases of major public health interest, namely, diphtheria, tuberculosis, and puerperal conditions, continue to constitute the outstandingly favorable health items of 1929. At the end of October the reduction in the diphtheria mortality rate as compared with last year was 15.6 per cent, for tuberculosis it was 5.8 per cent, and for the puerperal state 7 per cent. It is now assured, almost beyond peradventure, that a new minimum for each will be established this year. The large increase in mortality for diabetes shown during the first half of 1929 has been gradually decreasing during the subsequent months, and the cumulative death rate is now only slightly in excess of that for last year at this time. It becomes more and more evident that last winter's influenza outbreak hastened the deaths of many diabetics.

The automobile accident record is extremely unsatisfactory.

Death rates (annual basis) per 100,000 for principal causes of death, October, 1929
 [Industrial department, Metropolitan Life Insurance Co.]

Causes of death	Rate per 100,000 lives exposed ¹				
	October, 1929	Septem- ber, 1929	October, 1928	Cumulative, Jan- uary to October	
				1929	1928
Total—All causes.....	836.1	753.1	860.0	933.5	924.2
Typhoid fever.....	3.6	3.1	4.2	2.3	2.7
Measles.....	4	.5	.3	3.2	6.0
Scarlet fever.....	1.3	1.0	1.8	2.6	2.8
Whooping cough.....	3.8	4.9	5.0	6.0	5.9
Diphtheria.....	8.3	4.9	9.6	8.1	9.6
Influenza.....	9.1	4.3	8.7	45.2	22.7
Tuberculosis (all forms).....	79.7	69.2	83.8	87.2	92.6
Tuberculosis of respiratory system.....	68.9	60.6	73.8	76.9	81.0
Cancer.....	76.6	73.4	78.2	76.0	75.5
Diabetes mellitus.....	16.7	13.5	16.0	18.3	17.6
Cerebral hemorrhage.....	55.5	45.0	52.4	58.8	56.5
Organic diseases of heart.....	128.1	113.1	132.4	145.5	142.4
Pneumonia (all forms).....	53.1	32.9	57.8	89.6	91.1
Other respiratory diseases.....	10.4	8.7	10.1	12.1	12.9
Diarrhes and enteritis.....	31.6	45.4	37.9	21.5	25.3
Bright's disease (chronic nephritis).....	66.8	55.4	65.2	68.8	70.8
Puerperal state.....	10.4	10.8	12.7	13.3	14.3
Suicides.....	8.4	8.4	8.3	8.5	8.4
Homicides.....	7.6	5.6	6.6	6.4	6.5
Other external causes (excluding suicides and homicides).....	65.7	66.1	64.3	63.5	62.6
Traumatism by automobiles.....	25.7	22.0	21.8	19.5	17.6
All other causes.....	199.1	186.8	198.6	198.6	198.1

¹ All figures include infants insured under 1 year of age.

DEATHS DURING WEEK ENDED DECEMBER 7, 1929

Summary of information received by telegraph from industrial insurance companies for the week ended December 7, 1929, and corresponding week of 1928. (From the Weekly Health Index, December 11, 1929, issued by the Bureau of the Census, Department of Commerce)

	Week ended Dec. 7, 1929	Corresponding week, 1928
Policies in force.....	75,222,398	72,318,957
Number of death claims.....	13,393	14,102
Death claims per 1,000 policies in force, annual rate.....	9.3	10.2

Deaths from all causes in certain large cities of the United States during the week ended December 7, 1929, infant mortality, annual death rate, and comparison with corresponding week of 1928. (From the Weekly Health Index, December 11, 1929, issued by the Bureau of the Census, Department of Commerce)

City	Week ended Dec. 7, 1929		Annual death rate per 1,000, corresponding week, 1928	Deaths under 1 year		Infant mortality rate, week ended Dec. 7, 1929 ²
	Total deaths	Death rate ¹		Week ended Dec. 7, 1929	Corresponding week, 1928	
Total (63 cities)	7,478	13.2	13.3	646	717	156
Albany ⁴	34	14.8	21.3	3	4	59
Atlanta	80	18.2	19.1	13	8	135
White	44	(⁵)	(⁵)	6	5	
Colored	45	(⁵)	(⁵)	7	3	
Baltimore ⁴	216	13.6	14.4	21	20	67
White	152	(⁵)	(⁵)	13	12	52
Colored	64	(⁵)	(⁵)	8	8	127
Birmingham	68	16.0	15.5	7	12	63
White	27	(⁵)	(⁵)	1	4	15
Colored	41	(⁵)	(⁵)	6	8	137
Boston	213	13.9	14.0	24	32	66
Bridgeport	33	(⁵)	(⁵)	1	3	17
Buffalo	151	14.2	14.5	12	11	52
Cambridge	23	9.6	7.9	0	1	0
Camden	31	12.0	12.7	5	5	86
Chicago ⁴	711	11.8	13.9	65	76	58
Cincinnati	143	(⁵)	(⁵)	8	16	47
Cleveland	204	10.6	9.6	17	18	50
Columbus	91	15.9	15.2	3	4	28
Dallas	74	17.8	11.5	8	8	
White	56	(⁵)	(⁵)	7	7	
Colored	18	(⁵)	(⁵)	1	1	
Dayton	50	14.2	11.6	3	7	48
Denver	74	13.2	22.6	11	17	106
Des Moines	39	13.4	10.7	4	5	72
Detroit	316	12.0	11.5	44	54	71
Duluth	37	7.6	10.3	0	0	0
El Paso	21	9.3	14.6	0	4	
Erie	21	(⁵)	(⁵)	4	1	82
Fall River ⁴	14	5.5	10.9	1	3	19
Flint	22	7.7	13.7	4	9	49
Fort Worth	41	12.6	13.2	4	2	
White	33	(⁵)	(⁵)	1	1	
Colored	8	(⁵)	(⁵)	3	8	45
Grand Rapids	29	9.2	13.4	10	9	
Houston	67	(⁵)	(⁵)	9	7	
White	43	(⁵)	(⁵)	1	2	
Colored	24	(⁵)	(⁵)	6	6	88
Indianapolis	107	14.6	14.9	11	6	93
White	86	(⁵)	(⁵)	10	6	
Colored	21	(⁵)	(⁵)	1	0	60
Jersey City	76	12.2	9.8	5	6	39
Kansas City, Kans.	29	12.8	17.7	0	3	0
White	24	(⁵)	(⁵)	0	2	
Colored	5	(⁵)	(⁵)	0	1	0
Kansas City, Mo.	117	15.6	17.4	5	8	42
Knoxville	22	10.9	15.5	0	2	0
White	14	(⁵)	(⁵)	0	2	
Colored	8	(⁵)	(⁵)	0	0	0
Los Angeles	176	(⁵)	(⁵)	14	22	41
Louisville	87	13.8	14.4	6	5	49
White	63	(⁵)	(⁵)	4	5	37
Colored	24	(⁵)	(⁵)	2	0	126
Lowell	27	(⁵)	(⁵)	4	3	91
Lynn	25	12.4	7.4	3	3	82
Memphis	83	22.8	25.6	9	11	106
White	49	(⁵)	(⁵)	6	5	114
Colored	34	(⁵)	(⁵)	3	6	94
Milwaukee	120	11.5	9.0	11	13	48
Minneapolis	96	11.0	10.6	2	11	12
Nashville	54	20.2	24.0	6	4	97
White	29	(⁵)	(⁵)	5	3	100
Colored	25	(⁵)	(⁵)	1	1	63
New Bedford	17	(⁵)	(⁵)	2	2	43
New Haven	40	11.1	9.7	2	4	31
New Orleans	179	21.8	18.3	22	16	109
White	115	(⁵)	(⁵)	13	12	92
Colored	64	(⁵)	(⁵)	9	4	151

See footnotes at end of table.

Deaths from all causes in certain large cities of the United States during the week ended December 7, 1929, infant mortality, annual death rate, and comparison with corresponding week of 1928—Continued

City	Week ended Dec. 7, 1929		Annual death rate per 1,000, corresponding week, 1928	Deaths under 1 year		Infant mortality rate, week ended Dec. 7, 1929 ²
	Total deaths	Death rate ¹		Week ended Dec. 7, 1929	Corresponding week, 1928	
New York	1,479	12.9	12.7	110	153	49
Bronx Borough	206	11.3	10.0	16	15	47
Brooklyn Borough	464	10.5	11.4	45	46	46
Manhattan Borough	570	17.0	17.3	39	73	48
Queens Borough	177	10.8	9.2	16	18	65
Richmond Borough	62	21.5	15.6	3	1	54
Newark, N. J.	110	12.1	11.3	11	10	58
Oakland	47	9.0	14.3	3	8	33
Oklahoma City	47	—	—	5	2	100
Omaha	43	10.1	7.7	4	4	47
Paterson	33	11.9	18.8	4	2	71
Philadelphia	572	14.5	13.9	46	51	65
Pittsburgh	222	17.2	12.0	22	13	76
Portland, Oreg.	76	—	—	3	3	34
Providence	68	12.4	11.9	5	6	44
Richmond	63	16.9	15.1	7	5	98
White	34	—	—	4	2	85
Colored	29	(*)	(*)	3	3	123
Rochester	64	10.2	10.8	5	5	42
St. Louis	215	13.3	14.3	8	15	27
St. Paul	67	—	—	3	3	31
Salt Lake City ³	31	11.7	25.4	5	2	77
San Antonio	73	17.5	12.5	5	3	—
San Diego	40	—	—	2	4	38
San Francisco	188	16.8	14.3	7	3	45
Schenectady	25	14.0	15.1	2	0	64
Seattle	93	12.7	12.6	5	2	53
Somerville	15	7.6	9.2	1	2	36
Spokane	29	13.9	19.2	2	2	52
Springfield, Mass.	33	11.5	11.5	1	1	17
Syracuse	57	15.0	15.2	6	5	72
Tacoma	26	12.3	13.7	2	0	51
Toledo	78	13.0	13.4	8	1	75
Trenton	43	16.2	17.3	7	5	127
Washington, D. C.	138	15.0	11.6	13	9	76
White	101	—	—	6	3	51
Colored	57	(*)	(*)	7	6	133
Waterbury	15	—	—	1	3	25
Wilmington, Del.	25	10.2	8.5	1	2	26
Worcester	51	13.5	12.7	3	3	38
Yonkers	32	13.8	9.5	3	3	70
Youngstown	42	12.6	10.2	6	1	86

¹ Annual rate per 1,000 population.

² Deaths under 1 year per 1,000 births. Cities left blank are not in the registration area for births.

³ Data for 70 cities.

⁴ Deaths for week ended Friday.

⁵ In the cities for which deaths are shown by color, the colored population in 1920 constituted the following percentages of the total population: Atlanta, 31; Baltimore, 18; Birmingham, 39; Dallas, 15; Fort Worth, 14; Houston, 26; Indianapolis, 11; Kansas City, Kans., 14; Knoxville, 18; Louisville, 17; Memphis, 33; Nashville, 30; New Orleans, 26; Richmond, 32; and Washington, D. C., 25.

PREVALENCE OF DISEASE

No health department, State or local, can effectively prevent or control disease without knowledge of when, where, and under what conditions cases are occurring

UNITED STATES

CURRENT WEEKLY STATE REPORTS

These reports are preliminary and the figures are subject to change when later returns are received by the State health officers

Reports for Weeks Ended December 7, 1929, and December 8, 1928

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended December 7, 1929, and December 8, 1928

Division and State	Diphtheria		Influenza		Measles		Meningococcus meningitis	
	Week ended Dec. 7, 1929	Week ended Dec. 8, 1928	Week ended Dec. 7, 1929	Week ended Dec. 8, 1928	Week ended Dec. 7, 1929	Week ended Dec. 8, 1928	Week ended Dec. 7, 1929	Week ended Dec. 8, 1928
New England States:								
Maine	4	1	12	12	10	219	1	0
New Hampshire		1		17	43	34	1	0
Vermont	2				6	17	0	0
Massachusetts	134	116	5	15	106	637	4	2
Rhode Island	10	21		2	3	28	1	0
Connecticut	25	30	3	4	9	87	1	0
Middle Atlantic States:								
New York	184	255	134	136	273	766	17	32
New Jersey	174	165	5	22	72	87	3	4
Pennsylvania	202	148			416	438	10	6
East North Central States:								
Ohio	91	100	8	45	295	177	3	1
Indiana	47	38		87	18	75	1	0
Illinois	237	230	29	97	362	331	8	9
Michigan	146	85	2	6	138	149	15	8
Wisconsin	31	26	21	107	253	118	1	6
West North Central States:								
Minnesota	26	18	1	4	149	33	1	2
Iowa	13	24			107		1	0
Missouri	39	67	7	140	37	56	9	11
North Dakota	10	4		194	7	4	1	1
South Dakota	6	4	1		16	2	1	0
Nebraska	22	24	7	364	105	9	2	0
Kansas	20	26		13,596	76	20	3	2
South Atlantic States:								
Delaware	2	1				5	0	0
Maryland ¹	38	38	22	10	9	46	1	0
District of Columbia	12	24		3				
West Virginia	33	34	15	57	28	41	2	0
North Carolina	152	129	11		2	8	3	0
South Carolina	48	58	956	5,145		4	0	0
Georgia	22	27	133	990	12	1	0	0
Florida	14	13	1	17	7	6	1	1
East South Central States:								
Kentucky	31	17		4	87		0	0
Tennessee	22	33	61	222	16	7	3	0
Alabama	67	81	94	214	14	17	0	1
Mississippi	47	54					0	2
West South Central States:								
Arkansas	12	13	92	95		5	7	4
Louisiana	56	34	36	36	8	91	1	2
Oklahoma ²	71	133	116	204	36	3	9	2
Texas	127	77	30	38	2	4	2	3
Mountain States:								
Montana	4	9		4,580	73	105	4	2
Idaho					7	50	4	2
Wyoming	4	5	1	68	2	2	0	1
Colorado	15	7		1,936	12	3	4	7

¹ New York City only.

² Week ended Friday.

³ Figures for 1929 are exclusive of Oklahoma City and Tulsa.

Cases of certain communicable diseases reported by telegraph by State health officers for weeks ended December 7, 1929, and December 8, 1928—Continued

Division and State	Diphtheria		Influenza		Measles		Meningoencephalitis meningitis	
	Week ended Dec. 7, 1929	Week ended Dec. 8, 1928	Week ended Dec. 7, 1929	Week ended Dec. 8, 1928	Week ended Dec. 7, 1929	Week ended Dec. 8, 1928	Week ended Dec. 7, 1929	Week ended Dec. 8, 1928
Mountain States—Continued.								
New Mexico	6	10	1	170	7	1	1	0
Arizona	16	6	24	100	2	1	12	1
Utah ¹	2	2	3	96	5	1	0	5
Pacific States:								
Washington	13	28	—	22	35	36	1	3
Oregon	7	23	11	1,466	41	55	2	4
California	86	92	69	10,296	184	21	9	8
Division and State	Poliomyelitis		Scarlet fever		Smallpox		Typhoid fever	
	Week ended Dec. 7, 1929	Week ended Dec. 8, 1928	Week ended Dec. 7, 1929	Week ended Dec. 8, 1928	Week ended Dec. 7, 1929	Week ended Dec. 8, 1928	Week ended Dec. 7, 1929	Week ended Dec. 8, 1928
New England States:								
Maine	0	1	34	12	0	13	3	1
New Hampshire	0	0	7	27	0	0	0	0
Vermont	0	0	1	14	1	2	0	0
Massachusetts	2	4	235	232	0	0	10	1
Rhode Island	0	0	16	19	0	0	1	0
Connecticut	0	0	66	38	0	1	4	8
Middle Atlantic States:								
New York	4	4	325	369	7	0	15	17
New Jersey	2	0	171	126	0	0	4	2
Pennsylvania	3	1	322	286	5	0	20	18
East North Central States:								
Ohio	7	2	232	264	154	58	9	20
Indiana	0	0	160	126	170	44	2	6
Illinois	0	2	564	334	107	88	14	22
Michigan	2	0	268	285	78	21	6	4
Wisconsin	1	0	139	140	36	18	9	9
West North Central States:								
Minnesota	0	2	100	142	8	19	1	3
Iowa	1	1	93	99	78	51	9	0
Missouri	0	0	102	74	30	16	2	7
North Dakota	0	0	26	21	4	1	1	4
South Dakota	0	2	24	16	27	40	0	1
Nebraska	1	1	39	64	29	37	0	5
Kansas	0	0	85	106	44	28	10	4
South Atlantic States:								
Delaware	0	0	1	3	0	0	0	0
Maryland ¹	0	3	77	73	0	1	9	3
District of Columbia	0	0	11	12	0	0	0	0
West Virginia	0	0	58	54	22	13	12	2
North Carolina	3	2	97	102	7	2	9	2
South Carolina	3	5	44	27	0	0	0	12
Georgia	1	2	25	34	0	0	1	6
Florida	0	0	12	16	1	0	1	3
East South Central States:								
Kentucky	1	0	87	89	0	6	5	4
Tennessee	3	0	45	48	4	10	9	6
Alabama	1	0	37	73	0	1	7	6
Mississippi	0	0	19	28	0	0	5	5
West South Central States:								
Arkansas	0	0	32	29	3	1	6	5
Louisiana	0	0	22	20	1	5	3	16
Oklahoma ¹	0	2	88	73	56	40	17	44
Texas	0	0	48	60	14	30	2	8
Mountain States:								
Montana	0	1	53	15	26	13	5	2
Idaho	0	0	17	3	18	22	0	0
Wyoming	0	0	4	20	18	2	1	0
Colorado	0	0	23	27	5	3	4	2
New Mexico	0	0	9	12	0	0	8	2
Arizona	0	2	8	5	0	1	8	5
Utah ¹	0	1	7	10	0	2	0	0
Pacific States:								
Washington	0	3	45	57	51	26	6	2
Oregon	1	1	33	44	11	51	2	3
California	2	0	349	180	29	21	4	4

¹ Week ended Friday.² Figures for 1929 are exclusive of Oklahoma City and Tulsa.

SUMMARY OF MONTHLY REPORTS FROM STATES

The following summary of monthly State reports is published weekly and covers only those States from which reports are received during the current week:

State	Menin- gococ- cus menin- gitis	Diph- theria	Influ- enza	Malaria	Measles	Pella- gra	Polio- myelitis	Scarlet fever	Small- pox	Ty- phoid fever
<i>October, 1929</i>										
Mississippi.....	1	523	2,005	8,229	74	574	0	161	1	93
Virginia.....	10	589	692	71	111	19	67	427	168	82
<i>November, 1929</i>										
Arizona.....	30	94	31	6	2	1	44	2	21	
Arkansas.....	9	76	130	204	5	8	0	133	16	40
Connecticut.....	3	91	13	11	1	2	200	0	12	
Indiana.....	6	211	28	58	4	557	630	22		
New Hampshire.....	23	40	2,283	365	2	0	1	102	0	5
Porto Rico.....	41	48	41	16	1	84	16	0	51	
Vermont.....	17	17	3	3	0	14	54	4		
Wyoming.....	4	9								1

October, 1929

	Cases
Chicken pox:	
Mississippi.....	244
Virginia.....	203
Dengue:	
Mississippi.....	24
Dysentery:	
Mississippi (amebic).....	50
Mississippi (bacillary).....	558
Dysentery and diarrhea:	
Virginia.....	205
Hookworm disease:	
Mississippi.....	245
Mumps:	
Mississippi.....	100
Ophthalmia neonatorum:	
Mississippi.....	9
Puerperal septicemia:	
Mississippi.....	36
Rabies in animals:	
Mississippi.....	6
Rabies in man:	
Mississippi.....	1
Trachoma:	
Mississippi.....	7
Tularaemia:	
Virginia.....	1
Whooping cough:	
Mississippi.....	574
Virginia.....	723
<i>November, 1929</i>	
Anthrax:	
Porto Rico.....	2
Chicken pox:	
Arizona.....	50
Arkansas.....	73
Connecticut.....	641
Indiana.....	504
Vermont.....	268
Wyoming.....	34
Colibacillosis:	
Porto Rico.....	3
Conjunctivitis:	
Connecticut.....	7

November, 1929—Continued

	Cases
Dysentery:	
Arizona.....	2
Connecticut (bacillary).....	1
Porto Rico.....	48
Filariasis:	
Porto Rico.....	15
German measles:	
Connecticut.....	13
Lead poisoning:	
Connecticut.....	8
Leprosy:	
Porto Rico.....	1
Mumps:	
Arizona.....	278
Arkansas.....	16
Connecticut.....	100
Indiana.....	26
Porto Rico.....	8
Vermont.....	15
Wyoming.....	10
Ophthalmia neonatorum:	
Porto Rico.....	3
Paratyphoid fever:	
Arizona.....	1
Connecticut.....	8
Puerperal fever:	
Porto Rico.....	5
Rabies in animals:	
Connecticut.....	3
Septic sore throat:	
Connecticut.....	8
Wyoming.....	1
Tetanus:	
Porto Rico.....	4
Tetanus (infantile):	
Porto Rico.....	22
Trachoma:	
Arizona.....	74
Arkansas.....	3
Typhus fever:	
Arizona.....	1
Connecticut.....	1

November, 1929—Continued		November, 1929—Continued	
	Cases		Cases
Tularaemia:		Whooping cough:	
Indiana.....	1	Arizona.....	57
Undulant fever:		Arkansas.....	49
Arizona.....	3	Connecticut.....	146
Connecticut.....	2	Indiana.....	104
Wyoming.....	1	Porto Rico.....	104
Vincent's angina:		Vermont.....	102
Arkansas.....	2	Wyoming.....	15
Wyoming.....	1	Porto Rico.....	1

ADMISSIONS TO HOSPITALS FOR THE INSANE, JUNE, 1929

Reports for the month of June, 1929, showing new admissions to hospitals for the care and treatment of the insane, have been received by the Public Health Service from 105 hospitals located in 34 States and the Territory of Hawaii. The 105 hospitals had 82,576 male and 73,973 female patients on June 30, 1929, the ratio being 112 males per 100 females.

The following table shows the number of new admissions for the month of June, 1929, by psychoses:

Psychoses	Number of first admissions		
	Male	Female	Total
1. Traumatic psychoses.....	16	2	18
2. Senile psychoses.....	165	105	270
3. Psychoses with cerebral arteriosclerosis.....	192	108	300
4. General paralysis.....	184	54	238
5. Psychoses with cerebral syphilis.....	34	11	45
6. Psychoses with Huntington's chorea.....	4	2	6
7. Psychoses with brain tumor.....	0	0	0
8. Psychoses with other brain or nervous disease.....	30	15	45
9. Alcoholic psychoses.....	109	16	125
10. Psychoses due to drugs and other exogenous toxins.....	30	13	43
11. Psychoses with pellagra.....	13	24	37
12. Psychoses with other somatic diseases.....	42	46	88
13. Manic-depressive psychoses.....	172	230	411
14. Involution melancholia.....	9	41	50
15. Dementia praecox.....	309	249	558
16. Paranoia and paranoid conditions.....	25	34	59
17. Epileptic psychoses.....	44	28	72
18. Psychoneuroses and neuroses.....	23	40	63
19. Psychoses with psychopathic personality.....	17	7	24
20. Psychoses with mental deficiency.....	51	50	101
21. Undiagnosed psychoses.....	102	67	169
22. Without psychosis.....	133	55	188
Total.....	1,704	1,206	2,910

Fifty-eight and six-tenths per cent of the new admissions were males and 41.4 per cent were females, giving a ratio of 141 males per 100 females. Of the 156,549 patients, 8,510 males and 6,658 females were on parole or otherwise absent but still on the books at the end of the month—10.3 per cent of the male patients, 9.0 per cent of the females, and 9.7 per cent of the total patients.

Cases of dementia praecox constituted 19.2 per cent of the first admissions; manic-depressive psychoses, 14.1 per cent; psychoses with cerebral arteriosclerosis, 10.3 per cent; senile psychoses, 9.3 per cent; general paralysis, 8.2 per cent; "without psychosis," 6.5 per cent; and undiagnosed psychoses, 5.8 per cent.

December 20, 1929

GENERAL CURRENT SUMMARY AND WEEKLY REPORTS FROM CITIES

The 97 cities reporting cases used in the following table are situated in all parts of the country and have an estimated aggregate population of more than 31,435,000. The estimated population of the 90 cities reporting deaths is more than 29,860,000. The estimated expectancy is based on the experience of the last nine years, excluding epidemics.

Weeks ended November 30, 1929, and December 1, 1928

	1929	1928	Estimated expectancy
<i>Cases reported</i>			
Diphtheria:			
46 States	2,281	2,384	-----
97 cities	846	900	1,226
Measles:			
43 States	2,624	3,330	-----
97 cities	449	666	-----
Meningococcus meningitis:			
46 States	128	101	-----
97 cities	68	52	-----
Poliomyelitis:			
46 States	39	54	-----
Scarlet fever:			
46 States	3,889	3,469	-----
97 cities	1,290	1,024	1,114
Smallpox:			
46 States	854	631	-----
97 cities	84	38	32
Typhoid fever:			
46 States	309	367	-----
97 cities	32	38	38
<i>Deaths reported</i>			
Influenza and pneumonia:			
90 cities	676	976	-----
Smallpox:			
90 cities	0	0	-----

City reports for week ended November 30, 1929

The "estimated expectancy" given for diphtheria, poliomyelitis, scarlet fever, smallpox, and typhoid fever is the result of an attempt to ascertain from previous occurrence the number of cases of the disease under consideration that may be expected to occur during a certain week in the absence of epidemics. It is based on reports to the Public Health Service during the past nine years. It is in most instances the median number of cases reported in the corresponding weeks of the preceding years. When the reports include several epidemics, or when for other reasons the median is unsatisfactory, the epidemic periods are excluded and the estimated expectancy is the mean number of cases reported for the week during nonepidemic years.

If the reports have not been received for the full nine years, data are used for as many years as possible, but no year earlier than 1920 is included. In obtaining the estimated expectancy, the figures are smoothed when necessary to avoid abrupt deviation from the usual trend. For some of the diseases given in the table the available data were not sufficient to make it practicable to compute the estimated expectancy.

City reports for week ended November 30, 1929—Continued

Division, State, and city	Population, July 1, 1928, estimated	Chick-en pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
			Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
NEW ENGLAND									
Maine:									
Portland	78,600	20	2	0		0	0	2	4
New Hampshire:									
Concord	(1)	0	0	0		0	7	0	1
Manchester	85,700	0	3	0		0	0	0	1
Vermont:									
Barre	(1)	1	0	0		0	1	0	0
Massachusetts:									
Boston	799,200	68	43	44	4	1	11	52	15
Fall River	134,300	1	5	2	1	1	1	0	1
Springfield	149,800	39	5	7		0	2	0	3
Worcester	197,600	22	6	9		0	8	0	1
Rhode Island:									
Pawtucket	73,100	20	2	0		0	0	3	0
Providence	286,300	0	11	10		0	0	1	8
Connecticut:									
Bridgeport	(1)	5	8	1		0	1	0	5
Hartford	172,300	19	8	6		0	0	1	2
New Haven	187,900	22	2	0		0	0	4	1
MIDDLE ATLANTIC									
New York:									
Buffalo	555,800	25	20	19		0	2	4	11
New York	6,017,500	146	198	121	11	6	11	43	117
Rochester	328,200	9	6	3		0	0	3	5
Syracuse	199,300	24	7	0		0	0	14	7
New Jersey:									
Camden	135,400	7	8	3		0	2	0	7
Newark	473,600	54	19	51	4	0	0	21	15
Trenton	139,000	3	5	0		0	1	0	3
Pennsylvania:									
Philadelphia	2,064,200	139	79	24	4	3	15	37	18
Pittsburgh	673,800	72	29	30		1	16	6	24
Reading	115,400	36	4	3		0	0	1	3
EAST NORTH CENTRAL									
Ohio:									
Cincinnati	413,700	23	18	3		5	10	0	9
Cleveland	1,010,300	148	54	22	4	3	5	2	11
Columbus	299,000	22	12	4	1	0	0	1	2
Toledo	313,200	95	14	2	1	1	167	4	5
Indiana:									
Fort Wayne	105,300	2	7	1		0	0	0	4
Indianapolis	382,100	65	14	4		1	6	7	15
South Bend	86,100	4	2	1		0	0	0	0
Terre Haute	73,500	5	2	0		0	0	0	2
Illinois:									
Chicago	3,157,400	126	100	169	6	4	27	23	57
Springfield	67,200	9	2	2	1	1	0	0	0
Michigan:									
Detroit	1,378,000	98	73	48	2	1	83	34	22
Flint	148,800	48	6	1		0	0	0	0
Grand Rapids	164,200	6	4	0		0	1	1	3
Wisconsin:									
Kenosha	56,500	12	2	0	1	0	0	0	0
Madison	50,500	14	2	1		0	0	38	0
Milwaukee	544,200	159	24	5		0	2	12	5
Racine	74,400	8	3	1		0	1	1	0
Superior	(1)	0	1	0		0	23	0	1
WEST NORTH CENTRAL									
Minnesota:									
Duluth	116,800	5	1	1		0	5	0	2
Minneapolis	455,900	196	32	1		1	21	11	11
St. Paul	(1)	43	18	2		3	1	10	9
Iowa:									
Davenport	(1)	1	2	1			0	0	-----
Des Moines	151,900	0	4	0			1	0	-----
Sioux City	50,000	17	2	1			1	2	2
Waterloo	37,100	16	0	1		1	13	1	-----

¹ No estimate of population made.

City reports week ended November 30, 1929—Continued

Division, State, and city	Population, July 1, 1928, estimated	Chick-en pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
			Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
WEST NORTH CENTRAL—continued									
Missouri:									
Kansas City	391,000	42	10	4	1	0	1	0	6
St. Joseph	78,500	7	2	2		1	1	0	2
St. Louis	848,100	9	48	33		2	2	5	—
North Dakota:									
Fargo	(1)	18	0	0		0	0	0	0
Grand Forks	(1)	16	0	0		0	0	0	—
South Dakota:							0	0	—
Aberdeen	(1)	12	0	0		0	0	0	—
Sioux Falls	(1)	0	1	0		0	0	0	—
Nebraska:									
Lincoln	71,100	6	2	1		0	29	0	0
Omaha	222,800	15	11	11		0	3	0	7
Kansas:									
Topeka	62,800	18	3	0		2	0	4	1
Wichita	99,300	13	4	3		0	4	3	4
SOUTH ATLANTIC									
Delaware:									
Wilmington	128,500		3						
Maryland:									
Baltimore	830,400	74	35	22	6	4	8	6	27
Cumberland	(1)	0	2	0	1	0	0	0	1
Frederick	(1)	0	0	1		0	1	0	0
District of Columbia:									
Washington	552,000	26	23	19		1	0	0	17
Virginia:									
Lynchburg	38,600	8	4	0		0	0	3	2
Norfolk	184,200	1	4	1		0	0	1	8
Richmond	194,400	3	17	6		1	0	0	8
Roanoke	64,600	0	5	2		1	0	0	2
West Virginia:									
Charleston	55,200	6	2	2		0	1	0	0
Wheeling	(1)	7	3	0		0	1	2	0
North Carolina:									
Raleigh	(1)	0	2	2		0	0	0	0
Wilmington	39,100	1	1	3		0	0	0	2
Winston-Salem	80,000	11	3	3		0	0	1	0
South Carolina:									
Charleston	75,900	1	1	2	38	0	0	2	0
Columbia	50,600	1	1	1		0	0	0	1
Georgia:									
Atlanta	255,100	10	6	9	17	1	1	4	3
Brunswick	(1)	0	0	0		0	0	1	0
Savannah	99,900	1	3	4	7	1	0	0	3
Florida:									
Miami	156,700	1	2	5	1	0	2	2	3
St. Petersburg	53,300	0	0		0				0
Tampa	113,400	1	3	1		0	0	2	0
EAST SOUTH CENTRAL									
Kentucky:									
Covington	50,000	1	2	0		0	0	2	2
Tennessee:									
Memphis	190,200	0	9	9		0	0	0	7
Nashville	130,600	4	4	0		1	0	0	10
Alabama:									
Birmingham	222,400	2	7	9	4	1	0	0	9
Mobile	69,600	1	2	2	2	0	0	0	2
Montgomery	63,100	0	2	3		0	0	0	—
WEST SOUTH CENTRAL									
Arkansas:									
Fort Smith	(1)	0	2	1		0	0	0	—
Little Rock	79,200	0	1	1		0	0	0	1
Louisiana:									
New Orleans	429,400	1	13	20	7	7	10	0	15
Shreveport	81,300	0	1	6		0	0	0	3
Oklahoma:									
Oklahoma City	(1)	0	4	11	2	2	0	0	4

¹ No estimate of population made.

City reports for week ended November 30, 1929—Continued

Division, State, and city	Population, July 1, 1928, estimated	Chick-en pox, cases reported	Diphtheria		Influenza		Measles, cases reported	Mumps, cases reported	Pneumonia, deaths reported
			Cases, estimated expectancy	Cases reported	Cases reported	Deaths reported			
WEST SOUTH CENTRAL—continued									
Texas:									
Dallas	217,800	15	17	34		1	0	0	7
Fort Worth	170,600	3	7	21		0	0	0	9
Galveston	50,600	0	1	0		0	0	0	0
Houston	(1)	0	9	0		2	0	0	0
San Antonio	218,100	0	5	6		4	0	0	5
MOUNTAIN									
Montana:									
Billings	(1)	1	0	0		0	0	12	0
Great Falls	(1)	4	1	0		0	1	18	0
Helena	(1)	0	0	0		0	1	1	1
Missoula	(1)	1	0	0		0	0	1	2
Idaho:									
Boise	(1)	7	6	0		0	1	0	0
Colorado:									
Denver	294,200	86	16	2		0	2	11	11
Pueblo	44,200	6	2	0		1	0	0	2
New Mexico:									
Albuquerque	(1)	10	1	1		0	4	1	0
Utah:									
Salt Lake City	138,000	42	5	0		1	10	4	2
Nevada:									
Reno	(1)	0	0	0		0	0	0	0
PACIFIC									
Washington:									
Seattle	383,200	48	6	0		0	35		
Spokane	109,100	30	3	2		1	0		
Tacoma	110,500	10	3	1		0	0		2
Oregon:									
Portland	(1)	35	12	1	3	1	0	10	7
Salem	(1)	4	0	1		0	0	2	0
California:									
Los Angeles	(1)	22	51	10	34	3	0	16	18
Sacramento	75,700	20	3	2		1	1	13	8
San Francisco	585,300	43	19	8	3	0	101	49	5

Division, State, and city	Scarlet fever		Smallpox			Tuber-cu-losis, deaths reported	Typhoid fever			Whoop-ing cough, cases reported	Deaths, all causes
	Cases, estimated expectancy	Cases reported	Cases, estimated expectancy	Cases reported	Deaths reported		Cases, estimated expectancy	Cases reported	Deaths reported		
NEW ENGLAND											
Maine:											
Portland	2	5	0	0	0	1	1	0	0	0	21
New Hampshire:											
Concord	0	3	0	0	0	0	0	0	0	0	11
Manchester	2	0	0	0	0	0	0	0	0	0	15
Vermont:											
Barre	0	1	0	0	0	1	0	0	0	0	4
Massachusetts:											
Boston	50	78	0	0	0	12	2	0	0	44	263
Fall River	3	0	0	0	0	2	0	0	0	4	24
Springfield	6	0	0	0	0	3	0	0	0	16	31
Worcester	11	4	0	0	0	2	0	0	0	11	51
Rhode Island:											
Pawtucket	1	0	0	0	0	0	0	0	0	2	17
Providence	8	14	0	0	0	1	0	0	0	9	68

¹ No estimate of population made.

City reports for week ended November 20, 1929—Continued

Division, State, and city	Scarlet fever		Smallpox			Tuber- culosis, deaths re- ported	Typhoid fever			Whoop- ing cough, cases re- ported	Deaths, all causes
	Cases, esti- mated expect- ancy	Cases re- ported	Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		Cases, esti- mated expect- ancy	Cases re- ported	Deaths re- ported		
NEW ENGLAND—continued											
Connecticut:											
Bridgeport	8	1	0	0	0	1	0	0	0	0	33
Hartford	5	7	0	0	0	0	0	1	1	8	31
New Haven	5	2	0	0	0	0	1	0	1	4	42
MIDDLE ATLANTIC											
New York:											
Buffalo	21	26	0	0	0	9	1	0	0	10	150
New York	145	100	0	0	0	81	17	5	0	41	1,297
Rochester	8	3	0	0	0	3	1	0	0	0	73
Syracuse	10	7	0	0	0	0	0	0	0	15	65
New Jersey:											
Camden	5	3	0	0	0	0	1	0	0	0	21
Newark	17	5	0	0	0	16	1	0	0	20	110
Trenton	3	14	0	0	0	2	0	0	0	0	26
Pennsylvania:											
Philadelphia	75	57	0	0	0	25	3	0	1	30	419
Pittsburgh	41	24	0	0	0	6	0	0	0	4	181
Reading	2	1	0	0	0	0	0	0	0	6	24
EAST NORTH CENTRAL											
Ohio:											
Cincinnati	16	34	0	1	0	14	1	5	0	4	138
Cleveland	34	52	0	2	0	11	1	0	0	32	185
Columbus	11	9	1	0	0	5	0	0	0	2	69
Toledo	13	9	1	0	0	6	1	0	0	1	77
Indiana:											
Fort Wayne	3	6	0	10	0	2	0	1	0	3	29
Indianapolis	15	15	4	0	0	3	1	0	0	9	90
South Bend	4	2	0	2	0	0	0	0	0	0	7
Terre Haute	4	3	0	0	0	1	0	0	0	0	21
Illinois:											
Chicago	100	269	1	1	0	35	4	0	0	63	608
Springfield	3	1	0	0	0	0	0	0	0	1	18
Michigan:											
Detroit	81	126	0	3	0	24	2	2	1	45	265
Flint	12	14	0	2	0	0	0	0	0	3	34
Grand Rapids	10	6	0	0	0	0	0	0	0	4	37
Wisconsin:											
Kenosha	0	0	1	0	0	1	0	0	0	0	8
Madison	1	1	1	0	0	0	0	0	0	13	—
Milwaukee	20	20	0	0	0	3	1	0	0	19	86
Racine	5	4	0	0	0	0	0	0	0	2	7
Superior	2	4	0	0	0	1	0	0	0	0	7
WEST NORTH CENTRAL											
Minnesota:											
Duluth	9	4	0	0	0	0	0	0	0	4	19
Minneapolis	48	12	2	0	0	2	0	1	0	3	94
St. Paul	23	9	3	0	0	2	0	0	0	6	72
Iowa:											
Davenport	2	0	0	7	—	—	0	0	—	0	—
Des Moines	10	14	1	6	—	—	0	0	—	0	35
Sioux City	4	0	0	0	—	—	0	0	—	2	—
Waterloo	4	2	0	12	—	—	0	0	—	3	—
Missouri:											
Kansas City	14	32	0	0	0	9	1	0	0	5	113
St. Joseph	3	3	0	6	—	—	1	0	—	1	19
St. Louis	35	8	0	3	0	10	2	2	0	4	215
North Dakota:											
Fargo	3	2	0	2	0	0	0	0	0	1	8
Grand Forks	1	0	0	2	—	—	0	0	—	0	—
South Dakota:											
Aberdeen	0	0	0	0	—	—	0	0	—	4	—
Sioux Falls	3	0	0	16	—	—	0	0	—	0	8
Nebraska:											
Lincoln	3	2	0	1	0	0	0	0	0	2	15
Omaha	6	3	1	2	0	1	0	0	0	0	58
Kansas:											
Topeka	3	13	1	0	0	1	0	0	0	0	14
Wichita	5	7	0	0	0	0	0	0	0	0	29

¹ No estimate of population made.

City reports for week ended November 30, 1929—Continued

City reports for week ended November 30, 1929—Continued

Division, State, and city	Scarlet fever		Smallpox			Tuber-cu-los, deaths re-ported	Typhoid fever			Whoop-ing cough, cases re-ported	Deaths, all causes
	Cases, estimated expectancy	Cases re-ported	Cases, estimated expectancy	Cases re-ported	Deaths re-ported		Cases, estimated expectancy	Cases re-ported	Deaths re-ported		
MOUNTAIN—contd.											
Colorado:											
Denver.....	12	12	0	0	0	10	0	0	0	5	70
Pueblo.....	2	0	0	0	0	0	0	1	0	0	13
New Mexico:											
Albuquerque.....	1	1	0	0	0	5	0	0	0	0	10
Utah:											
Salt Lake City.....	3	10	1	2	0	1	0	1	0	8	35
Nevada:											
Reno.....	0	0	0	0	0	0	0	0	0	0	5
PACIFIC											
Washington:											
Seattle.....	8	14	2	0			1	0		9	
Spokane.....	10	4	3	19			0	0		2	
Tacoma.....	2	3	2	10	0	0	0	0	0	0	28
Oregon:											
Portland.....	8	5	6	0	0	3	1	2	0	0	67
Salem.....	0	0	0	0	0	0	0	0	0	0	
California:											
Los Angeles.....	26	57	2	0	0	23	1	1	0	19	263
Sacramento.....	3	8	1	2	0	0	0	0	0	0	38
San Francisco.....	15	24	1	0	0	12	0	0	0	2	174

Division, State, and city	Meningococcus meningitis		Lethargic encephalitis		Pellagra		Poliomylitis (infantile paralysis)		
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases, estimated expectancy	Cases	Deaths
NEW ENGLAND									
Massachusetts:									
Boston.....	1	2	0	0	1	0	1	0	0
Rhode Island:									
Providence.....	1	0	0	0	0	0	0	0	0
MIDDLE ATLANTIC									
New York:									
New York.....	19	7	2	1	0	0	3	0	0
Syracuse.....	2	2	0	0	0	0	0	0	0
New Jersey:									
Newark.....	1	1	0	0	0	0	0	0	0
Pennsylvania:									
Philadelphia.....	4	1	0	0	0	0	0	0	0
Pittsburgh ¹	1	0	0	1	0	0	0	0	0
EAST NORTH CENTRAL									
Ohio:									
Cleveland.....	1	1	0	0	0	0	0	0	0
Toledo.....	1	0	0	0	0	0	0	0	0
Illinois:									
Chicago.....	7	1	0	0	0	0	1	1	1
Michigan:									
Detroit.....	8	4	2	0	0	0	0	0	1
Wisconsin:									
Milwaukee.....	3	0	0	0	0	0	0	0	0
WEST NORTH CENTRAL									
Minnesota:									
Minneapolis.....	2	0	0	0	0	0	0	0	0
Missouri:									
Kansas City.....	3	3	0	0	0	0	0	0	0
St. Joseph.....	0	1	0	0	0	0	0	0	0
St. Louis.....	3	1	0	0	0	0	0	0	0
Kansas:									
Topeka.....	1	0	0	0	0	0	0	0	0

¹ Rabies (in man): 1 case and 1 death at Pittsburgh, Pa.

City reports for week ended November 30, 1929—Continued

Division, State, and city	Meningococcus meningitis		Lethargic encephalitis		Pellagra		Poliomyelitis (infantile paralysis)		
	Cases	Deaths	Cases	Deaths	Cases	Deaths	Cases, estimated expectancy	Cases	Deaths
SOUTH ATLANTIC									
Maryland:									
Baltimore.....	1	0	0	0	0	0	1	1	0
District of Columbia:									
Washington.....	1	1	0	0	0	0	0	0	0
Virginia:									
Richmond.....	0	0	0	0	0	0	0	1	0
West Virginia:									
Wheeling.....	1	0	0	0	0	0	0	0	0
North Carolina:									
Winston-Salem.....	0	0	0	0	1	1	0	0	0
South Carolina:									
Charleston.....	0	0	0	0	5	1	0	0	0
Georgia: ²									
Atlanta.....	0	0	0	0	1	1	0	0	0
EAST SOUTH CENTRAL									
Tennessee:									
Memphis.....	0	1	0	0	0	0	0	0	0
Alabama:									
Mobile ¹	0	0	0	0	0	1	0	0	0
WEST SOUTH CENTRAL									
Arkansas:									
Little Rock.....	0	0	0	0	0	2	0	0	0
Louisiana:									
New Orleans.....	2	1	0	0	0	0	0	3	0
Oklahoma:									
Oklahoma City.....	0	0	0	1	0	0	0	0	0
Texas:									
Dallas.....	1	0	0	0	0	0	0	0	0
Fort Worth.....	1	0	0	0	0	1	0	0	0
MOUNTAIN									
Montana:									
Missoula.....	1	1	0	0	0	0	0	0	0
Nevada:									
Reno.....	2	0	0	0	0	0	0	0	0
PACIFIC									
Oregon:									
Portland.....	1	0	0	0	0	0	1	1	0
Salem.....	0	0	1	0	0	0	0	0	0
California:									
Los Angeles.....	3	1	0	0	0	0	1	0	0
San Francisco.....	1	0	0	0	0	0	0	0	0

¹ Typhus fever: 4 cases; 3 cases at Savannah, Ga., and 1 case at Mobile, Ala.

The following table gives the rates per 100,000 population for 98 cities for the 5-week period ended November 30, 1929, compared with those for a like period ended December 1, 1928. The population figures used in computing the rates are approximate estimates, authoritative figures for many of the cities not being available. The 98 cities reporting cases have an estimated aggregate population of more than 31,000,000. The 91 cities reporting deaths have nearly 30,000,000 estimated population. The number of cities included in each group and the estimated aggregate populations are shown in a separate table on page 3148.

December 20, 1929

Summary of weekly reports from cities, October 27 to November 30, 1929—Annual rates per 100,000 population, compared with rates for the corresponding period of 1928¹

DIPHTHERIA CASE RATES

	Week ended—									
	Nov. 2, 1929	Nov. 3, 1928	Nov. 9, 1929	Nov. 10, 1928	Nov. 16, 1929	Nov. 17, 1928	Nov. 23, 1929	Nov. 24, 1928	Nov. 30, 1929	Dec. 1, 1928
98 cities	144	140	157	155	160	161	186	165	140	152
New England	115	90	120	122	170	159	118	140	179	195
Middle Atlantic	99	110	104	109	112	135	123	137	123	131
East North Central	168	169	194	169	205	165	301	182	166	185
West North Central	160	145	200	211	165	198	169	186	113	104
South Atlantic	144	231	126	260	122	222	135	230	151	128
East South Central	204	196	217	238	231	126	238	147	156	175
West South Central	451	223	498	276	443	243	462	272	269	223
Mountain	17	71	61	71	44	239	189	124	17	53
Pacific	115	64	100	79	87	97	62	105	57	72

MEASLES CASE RATES

98 cities	38	59	44	74	56	95	72	110	74	115
New England	27	338	20	402	45	382	57	582	70	605
Middle Atlantic	33	33	20	43	26	69	34	59	33	46
East North Central	40	39	68	57	91	86	94	105	101	132
West North Central	52	68	94	43	50	63	81	102	100	66
South Atlantic	15	46	9	59	7	90	24	65	24	60
East South Central	0	7	7	0	14	0	14	7	0	0
West South Central	0	8	4	8	20	12	28	4	40	16
Mountain	244	90	61	177	233	204	107	239	131	230
Pacific	60	15	117	43	147	51	289	15	257	72

SCARLET FEVER CASE RATES

98 cities	156	125	192	165	206	168	219	176	214	173
New England	179	131	278	175	267	193	251	212	260	186
Middle Atlantic	89	69	102	95	135	108	127	109	116	102
East North Central	226	172	294	233	310	245	347	227	360	237
West North Central	160	198	186	254	138	225	223	284	183	221
South Atlantic	139	117	167	153	238	109	163	147	145	145
East South Central	204	147	177	161	156	224	156	274	136	161
West South Central	154	138	158	178	158	199	162	146	123	186
Mountain	226	62	357	89	226	97	267	106	348	115
Pacific	187	148	182	169	185	143	269	194	274	261

SMALLPOX CASE RATES

98 cities	13	1	9	4	14	4	24	7	14	6
New England	0	0	2	0	25	0	0	0	0	5
Middle Atlantic	0	0	0	0	0	0	0	0	0	0
East North Central	20	0	15	7	22	4	33	21	13	12
West North Central	42	2	29	6	42	2	50	2	48	8
South Atlantic	0	2	0	0	0	2	2	0	0	6
East South Central	14	7	0	0	0	7	0	14	0	0
West South Central	28	4	8	4	4	0	40	8	12	12
Mountain	61	0	17	9	9	89	71	0	35	35
Pacific	30	5	20	15	32	3	115	18	77	8

¹ The figures given in this table are rates per 100,000 population, annual basis, and not the number of cases reported. Populations used are estimated as of July 1, 1929 and 1928, respectively.

² Reno, Nev., not included.

³ Wilmington, Del., not included.

Summary of weekly reports from cities, October 27 to November 30, 1929—Annual rates per 100,000 population, compared with rates for the corresponding period of 1928—Continued

TYPHOID FEVER CASE RATES

	Week ended—										
	Nov. 2, 1929	Nov. 3, 1928	Nov. 9, 1929	Nov. 10, 1928	Nov. 16, 1929	Nov. 17, 1928	Nov. 23, 1929	Nov. 24, 1928	Nov. 30, 1929	Nov. 1, 1928	
98 cities.....	11	13	9	10	8	10	13	10	5	6	
New England.....	7	7	11	9	23	16	11	7	2	5	
Middle Atlantic.....	8	11	8	7	3	10	10	9	2	7	
East North Central.....	6	5	6	5	6	6	9	5	5	5	
West North Central.....	17	18	12	4	4	14	12	16	6	8	
South Atlantic.....	13	34	13	17	9	11	19	11	4	10	
East South Central.....	34	42	20	42	14	14	34	35	34	0	
West South Central.....	20	20	12	41	8	20	36	12	16	16	
Mountain.....	78	18	17	27	44	18	36	9	26	9	
Pacific.....	2	5	7	3	10	5	5	13	2	3	

INFLUENZA DEATH RATES

91 cities.....	11	10	8	13	9	15	18	17	11	34
New England.....	2	2	5	5	9	9	5	9	5	9
Middle Atlantic.....	9	5	8	12	4	9	9	15	5	10
East North Central.....	9	10	8	9	9	10	6	3	10	14
West North Central.....	6	12	3	3	3	9	6	9	21	18
South Atlantic.....	19	11	4	8	11	13	4	13	18	31
East South Central.....	30	31	37	38	22	23	30	31	15	31
West South Central.....	28	25	12	37	32	33	16	33	57	54
Mountain.....	26	18	0	27	26	53	9	44	17	310
Pacific.....	3	27	16	40	10	64	7	94	13	239

PNEUMONIA DEATH RATES

91 cities.....	106	88	105	94	99	105	103	126	107	139
New England.....	75	90	120	80	88	57	88	106	93	35
Middle Atlantic.....	113	83	115	105	103	125	108	128	101	142
East North Central.....	101	78	78	77	71	82	96	106	83	120
West North Central.....	135	107	108	98	120	110	102	104	126	150
South Atlantic.....	116	96	137	75	107	132	94	165	130	145
East South Central.....	155	115	89	169	230	161	252	169	222	184
West South Central.....	110	121	130	92	126	71	134	120	162	141
Mountain.....	131	97	131	97	157	115	107	159	157	186
Pacific.....	33	87	75	125	89	98	59	169	108	239

² Reno, Nev., not included.

³ Wilmington, Del., not included.

Number of cities included in summary of weekly reports and aggregate population of cities of each group, approximated as of July 1, 1929 and 1928, respectively

Groups of cities	Number of cities reporting cases	Number of cities reporting deaths	Aggregate population of cities reporting cases		Aggregate population of cities reporting deaths	
			1929	1928	1929	1928
Total.....	98	91	31,568,400	31,032,700	29,995,100	29,498,600
New England.....	12	12	2,305,100	2,273,900	2,305,100	2,273,900
Middle Atlantic.....	10	10	10,800,700	10,702,200	10,800,700	10,702,200
East North Central.....	16	16	8,181,900	8,001,300	8,181,900	8,001,300
West North Central.....	12	9	2,712,100	2,673,300	1,736,900	1,708,100
South Atlantic.....	19	19	2,783,200	2,732,900	2,783,200	2,732,900
East South Central.....	6	5	767,900	745,500	704,200	682,400
West South Central.....	8	7	1,319,100	1,289,900	1,285,000	1,256,400
Mountain.....	9	9	568,800	560,200	568,800	560,200
Pacific.....	6	4	2,000,600	2,043,500	1,560,300	1,551,200

FOREIGN AND INSULAR

CANADA

Provinces—Communicable diseases—Week ended November 23, 1929.—The Department of Pensions and National Health reports cases of certain communicable diseases in nine Provinces of Canada for the week ended November 23, 1929, as follows:

	Cerebro-spinal fever	Dysentery	Influenza	Lethargic encephalitis	Poliomyelitis	Smallpox	Typhoid fever
Prince Edward Island ¹							
Nova Scotia ¹							
New Brunswick ¹							
Quebec							
Ontario	1		2		5	35	27
Manitoba					1		
Saskatchewan						9	
Alberta	2				1		2
British Columbia	1	32		1	2	1	
Total	4	32	2	1	9	45	35

¹ No case of any disease included in the table was reported for the week.

Quebec Province—Communicable diseases—Week ended November 30, 1929.—The Bureau of Health of the Province of Quebec, Canada, reports cases of certain communicable diseases for the week ended November 30, 1929, as follows:

Disease	Cases	Disease	Cases
Chicken pox	108	Poliomyelitis	1
Diphtheria	72	Scarlet fever	109
German measles	1	Smallpox	2
Influenza	1	Tuberculosis	31
Measles	130	Typhoid fever	5
Mumps	107	Whooping cough	121
Ophthalmia neonatorum	2		

Quebec Province—Vital statistics—September, 1929.—Births, deaths, and marriages for the month of September, 1929, in the Province of Quebec, Canada, with deaths from certain principal causes, are shown in the following table:

Estimated population		Deaths from—Continued.	
Births	5,969	Heart disease	206
Birth rate per 1,000 population	27	Influenza	24
Deaths	2,706	Lethargic encephalitis	2
Death rate per 1,000 population	12.2	Measles	1
Marriages	2,247	Pneumonia	127
Deaths under 1 year	893	Poliomyelitis	5
Deaths under 1 year per 1,000 births	149.6	Scarlet fever	6
Deaths from—		Syphilis	6
Cancer	149	Tuberculosis (pulmonary)	103
Cerebrospinal meningitis	15	Tuberculosis (other forms)	52
Diabetes	21	Typhoid fever	21
Diarrhea	357	Violence	133
Diphtheria	23	Whooping cough	27

CUBA

Habana—Communicable diseases—September, 1929.—During the month of September, 1929, certain communicable diseases were reported in the city of Habana, Cuba, as follows:

Disease	Cases	Deaths	Disease	Cases	Deaths
Cerebrospinal meningitis	1		Measles	3	
Chicken pox	4		Scarlet fever	15	
Diphtheria	45	4	Tuberculosis	56	43
Malaria ¹	24		Typhoid fever ¹	100	27

¹ Many of these cases are from the interior.

Provinces—Communicable diseases—Four weeks ended November 23, 1929.—During the four weeks ended November 23, 1929, cases of certain communicable diseases were reported in the Provinces of Cuba as follows:

Disease	Pinar del Rio	Habana	Matanzas	Santa Clara	Cama-guey	Oriente	Total
Cancer		12	1	2		1	16
Cerebrospinal meningitis	1	1					2
Chicken pox		5		1	2	2	10
Diphtheria	3	53	3	15	2	1	77
Malaria		20	1	16	18	24	79
Measles		2		18			20
Paratyphoid fever				3		1	4
Scarlet fever		14		10			24
Tetanus (infantile)						1	1
Typhoid fever	8	125	10	32	14	17	206

DENMARK

Communicable diseases—September, 1929.—During the month of September, 1929, cases of communicable diseases were reported in Denmark as follows:

Disease	Cases	Disease	Cases
Cerebrospinal meningitis	11	Mumps	636
Chicken pox	14	Paratyphoid fever	7
Diphtheria and croup	321	Poliomyelitis	37
Erysipelas	230	Puerperal fever	8
German measles	11	Scarlet fever	232
Influenza	2,951	Typhoid fever	11
Jaundice	107	Undulant fever ¹	30
Lethargic encephalitis	4	Whooping cough	600
Measles	188		

¹ Reported from State serum institute.

GREAT BRITAIN

England and Wales—Vital statistics—July—September, 1929.—During the third quarter of the year 1929, 163,929 births and 96,759 deaths were registered in England and Wales, giving a birth rate, on an annual basis, of 16.4 per 1,000 population, and a death rate of 9.7 per 1,000. The figures are provisional. The mortality of infants under 1 year of age was 54 per 1,000 live births.

During the 13 weeks ended September 28, 1929, deaths from certain communicable diseases were reported in 107 county boroughs and great towns, including Greater London, as follows:

Disease	Deaths	Deaths per 1,000 population	Disease	Deaths	Deaths per 1,000 population
Diarrhea and enteritis	1,023		Scarlet fever	55	.01
Diphtheria	275	.06	Smallpox	4	
Influenza	275	.06	Typhoid fever	38	
Measles	327	.07	Whooping cough	311	.06

Deaths from certain communicable diseases were reported in 157 smaller towns for the quarter ended September 30, 1929, as follows:

Disease	Deaths	Disease	Deaths
Diarrhea and enteritis under 2 years	153	Scarlet fever	8
Diphtheria	63	Typhoid fever	12
Influenza	77	Whooping cough	79
Measles	67		

England and Wales—Communicable diseases—Thirteen weeks ended September 28, 1929.—During the 13 weeks ended September 28, 1929, cases of certain communicable diseases were reported in England and Wales as follows:

Disease	Cases	Disease	Cases
Diphtheria	12,490	Scarlet fever	24,881
Ophthalmia neonatorum	1,479	Smallpox	1,622
Pneumonia	8,994	Typhoid fever	1,046
Puerperal fever	558	Typhus fever	1
Puerperal pyrexia	1,227		

MEXICO

Vera Cruz—Communicable diseases—Four weeks ended October 19, 1929.—During the four weeks ended October 19, 1929, deaths from certain communicable diseases were reported in Vera Cruz, Mexico, as follows:

Disease	Week ended—			
	Sept. 28	Oct. 5	Oct. 12	Oct. 19
Bronchitis			4	1
Cancer			1	1
Cerebrospinal meningitis			1	1
Dysentery	1			
Erysipelas				1
Gastrointestinal disorders	10	3	5	13
Hookworm disease			4	1
Malaria	2	1	1	1
Pneumonia	3	3	3	3
Syphilis	1			
Tetanus	1			
Tuberculosis	5	5	6	6
Typhoid fever	1	2	1	

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER

From medical officers of the Public Health Service, American consuls, International Office of Public Hygiene, Pan American Sanitary Bureau, health section of the League of Nations, and other sources. The reports contained in the following tables must not be considered as complete or final as regards either the list of countries included or the figures for the particular countries for which reports are given.

CHOLERA

[C indicates cases; D, deaths; P, present]

Place	May 5- June 1, 1929	June 2- 30, 1929	July 27, 1929	Aug. 24, 1929	Sept. 21, 1929	Oct. 28, 1929	Week ended—						
							5	12	19	26	2	9	16
													30
Ceylon.....	D 3												
Colombo.....	D 3	1											
China:	D 3	1											
Amoy.....	C 4	7	1										
Canton.....	D 10	6	5	1									
Manduria—	D 2	6	5	3	1								
Kwangtung—Dairen—	C 1				1								
Nanking—	C 2												
Shanghai.....	D 3	2	1,306	984	3	30					2		
Swatow—	C 3	8	98	69	9	2							
Tientsin.....	D 4	7	12	37	8	6					6	3	3
Chosen: Chemulpo.....	C 19	343	24,005	16,667	3,092	2,144							
India.....	C 30,616	29,440	32,061	41,060	26,896	5,251	3,372						
Bassein—	D 31	19,910	19,343	24,005	16,667	3,092	2,144						
Bombay.....	D 38	2	6	2	1								
Calcutta.....	D 2												
Karschi—	D 924	354	275	170	135	21	30						
Madras.....	D 905	176	157	106	59	12	12						
Moulmein.....	D 1			10	11								
Nepapatan.....	D 31	5	2										
Rangoon.....	C 13	8	1										
Tuticorin.....	D 7	34	6	1	1								
Vinaspatum.....	D 30	2									2	2	1
											1	1	1

There were 96 cases of cholera with 16 deaths in Naga Sridharmal Province, Siam, from May 16 to July 7, 1920.

ECHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

CHOLEST-Continued

[C indicates cases; D, deaths; P, present]

Reports incomplete.

PIAGGIO

[C indicates cases; D, deaths; P, present]

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

PL. AGILE—Continued

IC [Indicates cases: N deaths: P, present]

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

PLAQUE—Continued

[C indicates cases; D, deaths; P, present]

Place	May, 1929	June, 1929	July, 1929	August, 1929	September, 1929	Place	May, 1929	June, 1929	July, 1929	August, 1929	September, 1929	October, 1929	
British East Africa (see also table above)													
Kenya	C 22	1,215	67	19	28	64	Madagascar (see also table above)—Contd.						
Uganda	D	932	973	1	6	7	12	11	16	36	34	34	34
Ecuador: Guayaquil	C 2	1	1	1	3	4	Peru	D	10	16	11	11	11
Plague-infected rats	D 3	1	1	4	8	5	Senegal:	D	5	8	3	3	3
Greece (see also table above)	C	3	2	1	2	2	Baoul	C	21	43	22	32	42
Indo-China (see also table above)	D	37	9	1	2	2	Dakar	D	6	18	9	13	19
Madagascar (see also table above)	C	19	48	18	46	18	Doukkala	D	17	67	62	76	26
Ambositra Province	D	9	9	9	9	9	Dakar	D	11	45	45	65	17
Antsirabe Province	C	2	1	1	1	1	Louga	D	50	121	108	40	4
Majunga Province	D	2	2	1	1	1	Rufisque	C	30	70	64	64	24
Moramanga Province	C	1	2	2	2	2	Thies	D	22	7	1	1	1
	D						Tivaonane	C	6	10	61	33	34
								D	3	6	34	33	3
								C	22	63	161	188	18
								D	10	50	96	119	55

¹Incomplete reports.

SMALLPOX

[C indicates cases; D, deaths; P, present]

Place	May 1- June 1, 1929			June 2- 28, 1929			July 2- 30, 1929			Aug. 21- 29, 1929			Sept. 25- 1929			October, 1929			Novem- ber, 1929			Week ended—				
	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	
Algeria:																										
Algiers	C	5	6	C	6	7	C	1	C																	
Cherchell	C	6	1	C	1	1	C	5	C																	
Oran	C	40	110	C	108	38	C	4	C																	
Arabia: Aden	D	20	20	D	36	37	D	1	D																	
Australia: Fremantle Quarantine Station	C			C	1		C		C																	
Bermuda: Hamilton	C			C	1		C	3	C	2	C															
Brazil:				C	3		C		C		C															
Porto Alegre				C			C		C		C															
Rio de Janeiro				C			C		C		C															
British East Africa (see also table below):				C	4	7	C	10	C	6	C	9	C	2	C	1	C		C		C		C			
Tanganyika	D			D			D		D		D		D		D		D		D		D		D			
British South Africa:																										
Northern Rhodesia	C			D			C	4	C	2	C	1	C	1	C	1	C	2	C	1	C	1	C	1		
Southern Rhodesia	C	12		D			C	5	C	3	C	2	C	2	C	2	C	1	C	1	C	1	C	1		
Canada:				C			C	12	C	4	C	4	C	1	C	1	C	1	C	2	C	1	C	1		
Alberta	C			C			C		C	1	C	2	C	1	C	1	C	1	C	2	C	1	C	1		
Calgary	C			C			C		C	1	C	1	C	1	C	1	C	1	C	2	C	1	C	1		
Edmonton	C			C	23	13	C	14	C	8	C	5	C	13	C	13	C	2	C	2	C	1	C	6	1	
Manitoba	C	6		C	6	6	C	1	C	1	C		C		C		C	1	C	1	C	1	C			
Winnipeg and vicinity	C			C			C	2	C		C		C		C		C		C		C		C			
Nova Scotia	C			C	40	84	C	57	C	7	C	19	C	6	C	1	C	1	C	3	C	1	C	35		
Ontario	C			C			C		C		C		C		C		C		C		C		C			
London	C			C			C		C		C		C		C		C		C		C		C			
Niagara Falls	C	3		C			C		C	1	C	3	C	4	C	2	C	1	C	6	C	1	C	1		
North Bay	C	8	2	C	1	1	C	1	C	1	C		C		C		C		C	1	C	1	C	2		
Ottawa	C			C			C		C		C		C		C		C		C		C		C			
Sarnia	C			C			C		C	5	C	7	C	3	C	1	C	1	C	1	C	1	C			
Toronto	C			C			C	3	C	2	C	2	C	1	C	1	C	1	C	1	C	1	C			
Windsor	C			C			C		C	10	C	3	C	3	C	1	C	2	C	3	C	7	C	6		
Prince Edward Island	C			C			C	1	C	2	C	3	C	1	C	1	C	2	C	3	C	7	C	6		
Quebec	C			C	12	10	C	2	C	3	C	1	C	2	C	1	C	3	C	8	C	7	C	6		
Montreal	C	1	1	C	1	2	C	1	C	2	C	1	C	1	C	1	C	1	C	1	C	1	C	1		
Quebec	C			C			C		C		C		C		C		C		C		C		C			
Rivière du Loup	C			C			C		C		C		C		C		C		C		C		C			
Saskatchewan	C			C	14		C		C		C		C		C		C	1	C	5	C	8	C	9		
Saskatoon	C			C			C		C		C		C		C		C	1	C	3	C	1	C	5	9	

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

SMALLPOX—Continued

[C indicates cases; D, deaths; P, present]

Place	Week ended—											
	May 5-June 1, 1929			June 2- 29, 1929			July 28- Aug. 25, 1929			September, 1929		
	5	12	19	5	12	19	20	2	9	16	23	30
China:												
Amoy— Canton—	2	16	12	2	1	2						
Chaboo—	4	1	2									
Foochow—	P			P	P	1	P		P			
Hong Kong—	29	10	1	5	2	1		1	4	5	6	10
Manchuria—	25	6	6	4	2			2	2	7	4	8
Harbin—												
Kwantung—												
Dairen—												
Nanking—	21	11	14									
Shanghai—	8	3	9	1								
Foreigners only.				P	P	P				P		
Including natives.	6	7	3									
Swatow—	16	5	3									
Tientsin—	62	24	15	2								
Tsingtao—	12	P	P									
Chosen (see table below).												
Colombia:												
Barranquilla												
Buenaventura												
Dutch East Indies:												
Balikpapan—												
Belawan Deli—												
Borneo—Samarinda—												
Celebes—Matassar—												
D	43	20	21	4	12	3	1	12	3	1	12	140
D	38	15	11	5	11	5	9	2	3	2	3	6

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

SMALL-POX—Continued

[C] Indicate cause: D. death: P. present?

CHOLERA: SMALLPOX: TYPHUS FEVER: AND YELLOW FEVER—Continued

SMALLPOX—Continued

SC indicates case; D, deaths; P, present.

TYPHUS FEVER

[C indicates cases; D, deaths; P, present]

Place	May 5- June 1, 1929	June 2-9, 1929	June 9- July 27, 1929	July 28- Aug. 25, 1929	Aug. 25- Sept. 21, 1929	Week ended—						
						October, 1929			November, 1929			
	6	12	19	26	2	9	16	23				
Algeria:												
Algeria:	C	1	1	9	4	3	1	0				
Constantine Department.	C	11	5	2	2	3						
Oran.	C	14	9	2	19							
Bolivia: Potosi Province—Calacoto Canton.	C				5							
British South Africa: Northern Rhodesia.	D	3										
Bulgaria.	D	3										
Bulgaria:	D	21	4	12	14							
Bulgaria:	D	1	1	2								
Chile:	C			1								
Concepcion.	C	1										
Valparaiso.	C											
China: Tientsin	C			1								
Chosen (see table below).	C											
Czechoslovakia (see table below).	C											
Egypt: Alexandria.	C											
Egypt: Alexandria.	D											
Egypt: Alexandria.	D	1										
Egypt: Alexandria.	D	159	13	8	31	6	9	3				
Egypt: Alexandria.	D	28	6	4	2	2	3					
Egypt: Alexandria.	D	2		2	4	1						
Egypt: Alexandria.	C	2	2	4	2							
Egypt: Alexandria.	C	1			2							
Ireland (Irish Free State):	C											
Cavan County—Carickmacross.	C											
Donegal County—Stranorlar.	C											
Tyrone County—Strabane. ¹	C											
Latvia (see table below).	C											
Lithuania (see table below).	C											
Mexico:												
Aguascalientes.	D											
Mexico City, including municipalities in Federal District.	C	8	14	11	11	14	3	4	1	1	1	2
Mexico City, including municipalities in Federal District.	D	2	1	1	1	6						

During the period from Apr. 14 to May 21, 1929, 18 cases of typhus fever with 4 deaths were reported in Strabane, Tyrone County, Ireland.

CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER—Continued

TYPHUS FEVER—Continued

[C indicates cases; D, deaths; P, present]

Place	Week ended—																	
	May 5- June 1, 1929			June 18- 24, 1929			Aug. 25- Sept. 21, 1929			Sept. 28, 1929			Oct. 5-12 1929			Oct. 19- 26, 1929		
Morocco.....	C D	5 2	12 2	27 4	6 1	11 23					1 5		4 1	1 1		2 1		
Norway: Oslo.....	C D	2 1	2 4	4 10	1 8	5 8					1 1		1 1			2 1		
Palestine.....	C	2	5	56	23													
Persia.....	D	4	4	10	8													
Peru: Arequipa (see table below).....	C	264	177	90	48	26	5	10	3	13	20	8	15	13				
Poland.....	D C	19	7	4	7	4	1	1	1									
Portugal:.....	C	1																
Lisbon.....	C																	
Oporto.....	C																	
Romania.....	C	179	91	33	9	39	6	4	15	5	2					1	2	
Tunisia.....	C D C	31 22	13 23	2 3	1 4	4	2	2	1									
Turkey (see table below).....	C																	
Union of South Africa:.....																		
Cape Province.....	C	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	
Natal.....	C	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	
Orange Free State.....	C	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	
Transvaal.....	C	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	P	
Yugoslavia (see table below).....	C																	

1929

1929

1929

December 20, 1929

MELLOW FEVER

[C indicates cases; D, deaths; P, present.]

Imported

x

2 From June 19 to July 8, 1929, 41 cases of yellow fever with 23 deaths were reported in Socorro, Colombia.